

**INITIAL EXPRESS TERMS
FOR PROPOSED BUILDING STANDARDS
OF THE STATE FIRE MARSHAL
REGARDING THE 2022 CALIFORNIA FIRE CODE,
CALIFORNIA CODE OF REGULATIONS, TITLE 24, PART 9
(SFM 06/21)**

The State agency shall draft the regulations in plain, straightforward language, avoiding technical terms as much as possible and using a coherent and easily readable style. The agency shall draft the regulation in plain English. A notation shall follow the express terms of each regulation listing the specific statutes authorizing the adoption and listing specific statutes being implemented, interpreted, or made specific (Government Code Section 11346.2(a)(1)).

If using assistive technology, please adjust your settings to recognize underline, strikeout, italic and ellipsis.

LEGEND for EXPRESS TERMS (Based on model codes - Parts 2, 2.5, 3, 4, 5, 9, 10)

- Model Code language appears upright
- Existing California amendments appear in *italic*
- Amended model code or new California amendments appear *underlined & italic*
- Repealed model code language appears ~~upright and in strikeout~~
- Repealed California amendments appear in ~~*italic and strikeout*~~
- Ellipsis (...) indicate existing text remains unchanged

The Office of the State Fire Marshal (SFM) proposes to adopt the 2021 edition of the International Fire Code (IFC) into the 2022 edition of the California Fire Code (CFC). SFM further proposes to:

Repeal the adoption by reference of the 2018 International Fire Code and incorporate and adopt by reference in its place the 2021 International Fire Code for application and effectiveness in the 2022 California Fire Code.

Repeal certain amendments to the 2018 International Fire Code and/or California Building Standards not addressed by the model code that are no longer necessary.

Adopt new building standards or necessary amendments to the 2021 International Fire Code that address inadequacies of the 2021 International Fire Code as they pertain to California laws.

Bring forward previously existing California building standards or amendments, which represent no change in their effect from the 2019 California Building Standards Code.

Codify non-substantive editorial and formatting amendments from the format based upon the 2018 International Fire Code to the format of the 2021 International Fire Code.

INITIAL EXPRESS TERMS

CHAPTER 1 SCOPE AND ADMINISTRATION DIVISION I CALIFORNIA ADMINISTRATION

Item 1-1

Chapter 1, Scope and Administration, Division I, California Administration, Section 1.1.1 Title

[The SFM proposes to adopt Chapter 1, Division I with existing amendments.]

1.1.1 Title. *These regulations shall be known as the California Fire Code, may be cited as such and will be referred to herein as “this code.” The California Fire Code is Part 9 of thirteen parts of the official compilation and publication of the adoption, amendment, and repeal of building regulations to the California Code of Regulations, Title 24, also referred to as the California Building Standards Code. This part incorporates by adoption the ~~2018~~ 2021 California International Fire Code of the International Code Council (ICC) with necessary California amendments.*

Item 1-2

Chapter 1, Scope and Administration, Division I, California Administration, Section 1.1 through 1.1.12 General

[The SFM is proposing to adopt and carry forward existing California provisions contained in Sections 1.1 through 1.1.12.]

Item 1-3

Chapter 1, Scope and Administration, Division I, California Administration, Section 1.11 through 1.11.11 Office of the State Fire Marshal

[The SFM is proposing to carry forward existing California provisions contained in Sections 1.11 through 1.11.11 with amendments as shown below.]

Item 1-4

Chapter 1, Scope and Administration, Division I, California Administration, Section 1.11.1 Office of the State Fire Marshal

1.11.1 SFM - Office of the State Fire Marshal. *Specific scope of application of the agency responsible for enforcement, the enforcement agency and the specific authority to adopt and enforce such provisions of this code, unless otherwise stated.*

...

Residential facilities and residential facilities for the elderly.

Authority cited—Health and Safety Code, Section 13133.

Reference—Health and Safety Code, Section 13143.

Any state institution or other state-owned or state-occupied building. Authority cited—Health and Safety Code, Section 13108. Reference—Health and Safety Code, Section 13143

Residential facilities and residential facilities for the elderly.

Authority cited - Health and Safety Code Section 13143.6.

Reference - Health and Safety Code Section 13143.

Any state institution or other state-owned or specified state-occupied building.

Authority cited—Health and Safety Code, Section 13108.

Reference—Health and Safety Code, Section 13143.

Specified State-Occupied Buildings. Are any building, structure or area which:

- a. Is 100% state occupied.
- b. Or has a total floor area exceeding 55,000 square feet, is greater than 4 stories or 55 feet in height, and has assembly occupancy greater than 5,000 square feet and is 75 percent or more occupied by state entities,
- c. Or is of unusual design or construction as determined by the OSFM,
- d. Or that poses a high hazard risk to life or property,
- e. Or facilities housing records and/or artifacts of historical significance,
- f. Or properties leased by California State University (CSU) or University of California (UC).

Therefore, all leased buildings that do not meet the parameters listed above, become the responsibility of the local jurisdiction and are subject to ordinances.

Authority - Health and Safety Code Sections 13108, 13145, 13146, 16022,5 and 17921

Reference - Health and Safety Code Sections 13108, 13145, 13146, 16022,5 and 17921.

Authority cited—Health and Safety Code, Section 13108.

Reference—Health and Safety Code, Section 13143.

**Item 1-5 Chapter 1, Scope and Administration, Division I, California
Administration, Section 1.11.4.4 Fire Clearance Preinspection**

1.11.4.4 Fire clearance preinspection. Pursuant to Health and Safety Code, Section 13235, Fire Clearance Preinspection, fee, upon receipt of a request from a prospective licensee of a community care facility, as defined in Section 1502, of a residential care facility for the elderly, as defined in Section 1569.2, or of a child daycare facility, as defined in Section 1596.750, the local fire enforcing agency, as defined in Section 13244, or State Fire Marshal, whichever has primary jurisdiction, shall conduct a pre-inspection of the facility prior to the final fire clearance approval. At the time of the pre-

inspection, the primary fire enforcing agency shall price consultation and interpretation of the fire safety regulations and shall notify the prospective licensee of the facility in writing of the specific fire safety regulations which shall be enforced in order to obtain fire clearance approval. A fee equal to, but not exceeding, the actual cost of the preinspection may be charged for the preinspection of a facility, ~~with a capacity to serve 25 or fewer persons. A fee equal to, but not exceeding, the actual cost of the preinspection may be charged for a preinspection of a facility with a capacity to serve 26 or more persons.~~

Item 1-6

Chapter 1, Scope and Administration, Division I, California Administration, Section 1.11.4.5 Care Facilities

1.11.4.5 Care facilities. *The primary fire enforcing agency shall complete the final fire clearance inspection for a community care facility, residential care facility for the elderly, or child day-care facility within 30 days of receipt of the request for the final inspection, or as of the date the prospective facility requests the final precicensure inspection by the State Department of Social Services, whichever is later.*

Pursuant to Health and Safety Code, Section 13235, a preinspection fee equal to, but not exceeding, the actual cost of the preinspection services may be charged for the preinspection of a facility, with a capacity to serve 25 or less clients. ~~A fee equal to, but not exceeding, the actual cost of the preinspection may be charged for a preinspection of a facility with a capacity to serve 26 or more clients.~~

Pursuant to Health and Safety Code Section 13131.5, a reasonable final inspection fee, not to exceed the actual cost of inspection services necessary to complete a final inspection may be charged for occupancies classified as residential-care facilities for the elderly (RCFE).

Pursuant to Health and Safety Code Section 1569.84, neither the State Fire Marshal nor any local public entity shall charge any fee for enforcing fire inspection regulations pursuant to state law or regulation or local ordinance, with respect to residential-care facilities for the elderly (RCFE) which service six or fewer persons.

...

Item 1-7

Chapter 1, Scope and Administration, Division I, California Administration, Section 1.11.6 Certificate of Occupancy

1.11.6 Certificate of Occupancy. *A Certificate of Occupancy shall be issued as specified in Title 24, Part 2, California Building Code, Section 111.*

Exception: ~~*Group R, Division 3 and Group U occupancies. Certificates of occupancy are not required for work exempt from permits in accordance with Section 105.2 of the California Building Code.*~~

Item 1-8

**Chapter 1, Scope and Administration, Division I, California Administration,
Section 1.11.11 Adopting Agency Identification**

1.11.11 Adopting Agency Identification. *The provisions of this code applicable to buildings identified in this Section 1.11 will be identified in the Matrix Adoption Tables under the acronym SFM.*

**CHAPTER 1
SCOPE AND ADMINISTRATION**

DIVISION II
SCOPE AND ADMINISTRATION

Item 1-9

Chapter 1, Scope and Administration, Division II, Administration,

[The SFM proposes to only adopt Chapter 1, Division II Sections 102.1 – 102.5, 102.7-102.12, 104.2, 104.5, 104.8 – 104.8.2, 104.11-104.11.1, 105.1 – 105.2.2, 105.2.4, 105.3, 105.3.3 –105.5.9, Table 105.5.9, 105.5.11, Table 105.5.11, 105.5.12- 105.5.13 And carry forward existing amendments.]

**SECTION 105
PERMITS**

Item 1-10

**Chapter 1, Scope and Administration, Division II, Administration, Section
105.5.14, Energy Storage Systems**

[The SFM proposes to adopt model code Section 105.5.14 and repeal Section 105.6.52.]

105.5.14 Energy storage systems.

An operational permit is required for stationary and mobile energy storage systems regulated by Section 1206.

~~**105.6.52 Energy storage systems.** *An operational permit is required for stationary and mobile energy storage systems regulated by Section 1206.*~~

Item 1-11

**Chapter 1, Scope and Administration, Division II, Administration, Section 105
Permits, Sections 105.5.15- 105.5.19, 105.5.22, Table 105.5.22, 105.5.23 - 105.5.31**

[The SFM proposes to only adopt Chapter 1, Division II Sections 105.5.15- 105.5.19, 105.5.22, Table 105.5.22, 105.5.23 - 105.5.31 and carry forward existing amendments.]

Item 1-12

Chapter 1, Scope and Administration, Division II, Administration, Section 105 Permits, Section 105.6.16.1 through Section 105.5.32

[The SFM proposes to renumber Section 105.6.16.1 through Section 105.5.32. Delete model code language for 105.5.32. The SFM will not adopt Section 105.5.32.]

~~105.6.16.1~~ 105.5.32 Mobile food preparation vehicles. Mobile fueling of hydrogen-fueled vehicles. A permit is required for mobile food preparation vehicles equipped with appliances that produce smoke or grease-laden vapors.

An operational permit is required:

- 1. To engage in the mobile dispensing of gaseous hydrogen as a fuel into the fuel tanks of motor vehicles.*
- 2. Where required by the fire code official, to utilize a site for the dispensing of gaseous hydrogen as a fuel from tank vehicles into the fuel tanks of motor vehicles.*

Exception: *In cases of an emergency, a site permit is not required.*

Item 1-13

Chapter 1, Scope and Administration, Division II, Administration, Section 105 Permits, Sections 105.5.33, 105.5.38, 105.5.40, 105.5.42, 105.5.47, 105.5.49, 105.5.51

[The SFM proposes to adopt Sections 105.5.33, 105.5.38, 105.5.40, 105.5.42, 105.5.47, 105.5.49, 105.5.51, and carry forward existing amendments.]

[The SFM proposes to adopt and renumber Section 105.6.51 to Section 105.5.53, and carry forward existing amendments.]

~~105.6.51~~ 105.5.53 Additional permits. *In addition to the permits required by Section 105.6, the following permits shall be obtained from the Bureau of Fire Prevention prior to engaging in the following activities, operations, practices or functions:*

1. Production facilities. *To change use or occupancy, or allow the attendance of a live audience, or for wrap parties.*

2. Pyrotechnics and special effects. *To use pyrotechnic special effects, open flame, use of flammable or combustible liquids and gases, welding, and the parking of motor vehicles in any building or location used for the purpose of motion picture, television and commercial production.*

3. Live audiences. *To install seating arrangements for live audiences in approved production facilities, production studios and sound stages. See Chapter 48.*

Item 1-14

**Chapter 1, Scope and Administration, Division II, Administration, Section 105
Permits, Sections 105.6- 105.6.24**

[The SFM proposes to adopt Sections 105.6- 105.6.24 and carry forward existing amendments.]

Item 1-15

**Chapter 1, Scope and Administration, Division II, Administration, Section 105
Permits, Section 105.6.2 Compressed gases**

[The SFM proposes to repeal amendments to Section 105.6.2. Replace with model code language and adopt the section.]

105.6.2 Compressed gases. Where the compressed gases in use or storage exceed the amounts listed in Table ~~405.6.8~~ 105.5.9, a construction permit is required to install, repair damage to, abandon, remove, place temporarily out of service, or close or substantially modify a compressed gas system.

Exceptions:

1. Routine maintenance.
2. For emergency repair work performed on an emergency basis, application for permit shall be made within two working days of commencement of work.

Item 1-16

**Chapter 1, Scope and Administration, Division II, Administration, Section 105
Permits, Section 105.6.5 Energy storage systems**

[The SFM proposes to repeal California amendment Section 105.7.2 and replace with Section 105.6.5 and adopt the section.]

~~**105.7.2 Energy storage systems.** A construction permit is required to install energy storage systems regulated by Section 1206.~~

105.6.5 Energy storage systems.

A construction permit is required to install energy storage systems regulated by Section 1206.

Item 1-17

Chapter 1, Scope and Administration, Division II, Administration, Section 105.6.52

[The SFM proposes to add 105.6.52]

105.6.52 Lithium batteries. *An operational permit is required for an accumulation of more than 15 cubic feet (0.42 m) of lithium-ion and lithium metal batteries, where required by Section 321.1.*

Item 1-18

Chapter 1, Scope and Administration, Division II, Administration, Section 105.6.51

[The SFM proposes to renumber Section 105.5.51 to 105.6.53.]

~~**105.6.51**~~ **105.6.53** *Additional permits. ...*

Item 1-19

**Chapter 1, Scope and Administration, Division II, Administration, Section 105.7.3
Reserved**

[The SFM proposes to repeal and delete California amendment Section 105.7.3.]

~~**105.7.3**~~ *Reserved.*

Item 1-20

**Chapter 1, Scope and Administration, Division II, Administration, Section 106
Construction Documents, Sections 106, 108.2- 108.4, 112.1- 112.3.4, 113, 114**

[The SFM proposes to adopt Sections 106, 108.2- 108.4, 112.1- 112.3.4, 113, 114]

Notation:

Authority: Health and Safety Code Sections 1250, 1569.72, 1569.78, 1568.02, 1502, 1597.44, 1597.45, 1597.46, 1597.54, 1597.65, 13108, 13108.5, 13114, 13143, 13143.2, 13143.6, 13146, 13210, 13211, 17921, 18949.2, 25500 through 25545, Government Code Section 51189, Public Education Code 17074.50

Reference(s): Health and Safety Code Sections 13143, 13211, 18949.2, 25500 through 25545, Government Code Sections 51176, 51177, 51178 and 51179, Public Resources Code Sections 4201 through 4204

**CHAPTER 2
DEFINITIONS**

Item 2-1

Chapter 2, Section 202 General Definitions

[The SFM proposes to adopt Chapter 2 and carry forward existing amendments with the following modifications as listed below.]

Item 2-2

Chapter 2, Section 202 General Definitions, Additive Manufacturing

[The SFM proposes to make an editorial correction.]

ADDITIVE MANUFACTURING. A process of joining materials to make objects from 3D model data, usually layer upon layer, sometimes referred to as 3D printing. This code recognizes two types of additive manufacturing:

Industrial additive manufacturing 3D printing operations that typically utilize combustible powders or metals, an inert gas supply, a combustible dust collection system. or that create a hazardous (classified) location area or zone outside the equipment.

Nonindustrial additive manufacturing 3D printing operations that do *not* create a hazardous (classified) location area outside the equipment and do not utilize an inert gas supply or a combustible dust collection system.

Item 2-3

Chapter 2, Section 202 General Definitions, Atrium

~~**[BG] ATRIUM.** An opening connecting two or more stories other than enclosed stairways, elevators, hoistways, escalators, plumbing, electrical, air-conditioning or other equipment, which is closed at the top and not defined as a mall. Stories, as used in this definition, do not include balconies within assembly groups or mezzanines that comply with Section 505 of the *International Building Code*.~~

[BG] ATRIUM. A vertical space that is closed at the top, connecting two or more stories in Group I-2 and I-3 occupancies or three or more stories in all other occupancies.

Item 2-4

Chapter 2, Section 202 General Definitions, Battery Types

[The SFM proposes to repeal California amendments and replace with model code language.]

BATTERY TYPES. For the purposes of this code, certain types are defined as follows:

Flow battery. A type of storage battery that includes chemical components dissolved in two different liquids. Ion exchange, which provides the flow of electrical current, occurs through the membrane while both liquids circulate in their respective spaces.

Lead-acid battery. A storage battery that is comprised of lead electrodes immersed in ~~a solution of water and~~ a solution of water and sulphuric acid electrolyte.

Lithium metal polymer battery. A storage battery that is similar to the lithium ion battery except that it has a lithium metal anode in the place of the traditional carbon or graphite anode.

~~**Lithium metal polymer battery.** A storage battery that is similar to the lithium ion battery except that it has a lithium metal anode in the place of the traditional carbon or graphite anode.~~

Lithium-ion battery. A storage battery with lithium ions serving as the charge carriers of the battery. The electrolyte is a polymer mixture of carbonates with an inorganic salt and can be in a liquid or a gelled polymer form. Lithiated metal oxide is typically a cathode and forms of carbon or graphite typically form the anode.

Nickel-cadmium (Ni-Cd) battery. An alkaline storage battery in which the positive active material is nickel oxide, the negative electrode contains cadmium and the electrolyte is ~~a solution of water and~~ a solution of water and potassium hydroxide.

Nickel-metal hydride (Ni-MH). An alkaline storage battery in which the positive active material is nickel oxide, the negative electrode is an intermetallic compound and the electrolyte is usually potassium hydroxide.

Stationary storage battery. A group of electrochemical cells interconnected to supply a nominal voltage of DC power to a suitably connected electrical load, designed for service in a permanent location.

Item 2-5

Chapter 2, Section 202 General Definitions, Capacitor Energy Storage System

[The SFM proposes to adopt model code language for Capacitor Energy Storage System.]

CAPACITOR ENERGY STORAGE SYSTEM (Capacitor ESS). A stationary, rechargeable energy storage system consisting of capacitors, chargers, controls and associated electrical equipment designed to provide electrical power to a building or facility. The system is typically used to provide standby or emergency power, an uninterruptable power supply, load shedding, load sharing or similar capabilities.

Item 2-6

Chapter 2, Section 202 General Definitions, Carbon Dioxide Enrichment System

[The SFM proposes to repeal California amendment and replace with model code language.]

~~CARBON DIOXIDE ENRICHMENT SYSTEM.~~ ~~A system where carbon dioxide gas is intentionally introduced into an indoor environment, typically for the purpose of stimulating plant growth.~~

CARBON DIOXIDE ENRICHMENT SYSTEM. A system where carbon dioxide gas is intentionally introduced into an indoor environment, typically for the purpose of stimulating plant growth.

Item 2-7

Chapter 2, Section 202 General Definitions, Child Care

[The SFM is proposing a definition for Child Care.]

CHILD CARE For the purposes of these regulations, means the care of children during any period of a 24-hour day where permanent sleeping accommodations are not provided. The time-period shall not be more than 24-hours. Note: "Child care" shall not be construed to preclude the use of cots or mats for napping purposes, provided all employees, attendants and staff personnel are awake and on duty in the area where napping occurs.

Item 2-8

Chapter 2, Section 202 General Definitions, Day-Care

[The SFM proposes to amend the definition of Day-Care.]

DAY-CARE. For the purposes of these regulations, shall mean the care of persons during any period of a 24-hour day where permanent sleeping accommodations are not provided. The time-period shall not be more than 24-hours.

Note: "Day-care" shall not be construed to preclude the use of cots or mats for napping purposes, provided all employees, attendants and staff personnel are awake and on duty in the area where napping occurs.

Item 2-9

Chapter 2, Section 202 General Definitions, Energy Storage Management Systems

[The SFM proposes to repeal the California amendments and replace with model code language.]

ENERGY STORAGE MANAGEMENT SYSTEMS. An electronic system that protects energy ~~energy storage systems~~ ~~systems~~ from operating outside their safe operating parameters, and disconnects electrical power to the ESS or places it in a safe condition if potentially hazardous temperatures or other conditions are detected. ~~disconnects electrical power to the ESS or places it in a safe condition if potentially hazardous~~

~~temperatures or other conditions are detected.~~

Item 2-10

Chapter 2, Section 202 General Definitions, Energy Storage System (ESS)

[The SFM proposes to repeal California amendments and replace with model code language.]

ENERGY STORAGE SYSTEM (ESS). One or more devices, assembled together, capable of storing energy in order to supply electrical energy at a future time.

~~**ENERGY STORAGE SYSTEM (ESS).** One or more devices, assembled together, capable of storing energy in order to supply electrical energy at a future time.~~

Item 2-11

Chapter 2, Section 202 General Definitions, Energy Storage System, Electrochemical

[The SFM proposes to repeal California amendments and replace with model code language.]

ENERGY STORAGE SYSTEM, ELECTROCHEMICAL. An energy storage system that stores energy and produces electricity using chemical reactions. It includes, among others, battery ESS and capacitor ESS.

~~**ENERGY STORAGE SYSTEM, ELECTROCHEMICAL.** An energy storage system that stores energy and produces electricity using chemical reactions. It includes, among others, battery ESS and capacitor ESS.~~

Item 2-12

Chapter 2, Section 202 General Definitions, Energy Storage System, Mobile

[The SFM proposes to repeal California amendments and replace with model code language.]

ENERGY STORAGE SYSTEM, MOBILE. An energy storage system capable of being moved and utilized for temporary energy storage applications, and not installed as fixed or stationary electrical equipment. The system can include integral wheels for transportation or be loaded on a trailer and unloaded for charging, storage and deployment.

~~**ENERGY STORAGE SYSTEM, MOBILE.** An energy storage system capable of being moved and utilized for temporary energy storage applications, and not installed as fixed or stationary electrical equipment. The system can include integral wheels for transportation, or be loaded on a trailer and unloaded for charging, storage and deployment.~~

Item 2-13

Chapter 2, Section 202 General Definitions, Energy Storage System, Stationary

[The SFM proposes to repeal California amendments and replace with model code language.]

ENERGY STORAGE SYSTEM, STATIONARY. An energy storage system installed as fixed or stationary electrical equipment in a permanent location.

~~***ENERGY STORAGE SYSTEM, STATIONARY.*** An energy storage system installed as fixed or stationary electrical equipment in a permanent location.~~

Item 2-14

Chapter 2, Section 202 General Definitions, Energy Storage System, Walk-In Unit

[The SFM proposes to repeal California amendments and replace with model code language.]

ENERGY STORAGE SYSTEM, WALK-IN UNIT. A prefabricated building that contains energy storage systems. It includes doors that provide walk-in access for personnel to maintain, test and service the equipment, and is typically used in outdoor and mobile ESS applications.

~~***ENERGY STORAGE SYSTEM, WALK-IN UNIT.*** A pre-fabricated building that contains energy storage systems. It includes doors that provide walk-in access for personnel to maintain, test and service the equipment, and is typically used in outdoor and mobile ESS applications.~~

Item 2-15

Chapter 2, Section 202 General Definitions, Energy Storage System Cabinet

[The SFM proposes to repeal California amendments and replace with model code language.]

ENERGY STORAGE SYSTEM CABINET. A *listed* cabinet containing components of the energy storage system that is included in the UL 9540 listing for the system. Personnel are not able to enter the enclosure other than reaching in to access components for maintenance purposes.

~~***ENERGY STORAGE SYSTEM CABINET.*** A cabinet containing components of the energy storage system that is included in the UL 9540 listing for the system. Personnel are not able to enter the enclosure, other than reaching in to access components for maintenance purposes.~~

Item 2-16

Chapter 2, Section 202 General Definitions, Energy Storage System Commissioning

[The SFM proposes to repeal California amendments and replace with model code language.]

ENERGY STORAGE SYSTEM COMMISSIONING. A systematic process that provides documented confirmation that an energy storage system functions according to the intended design criteria and complies with applicable code requirements.

~~***ENERGY STORAGE SYSTEM COMMISSIONING.***~~ ~~*A systematic process that provides documented confirmation that an energy storage system functions according to the intended design criteria and complies with applicable code requirements.*~~

Item 2-17

Chapter 2, Section 202 General Definitions, Energy Storage System Decommissioning

[The SFM proposes to repeal California amendments and replace with model code language.]

ENERGY STORAGE SYSTEM DECOMMISSIONING. A systematic process that provides documentation and procedures that allow an energy storage system to be safely de-energized, disassembled, readied for shipment or storage, and removed from the premises in accordance with applicable code requirements.

~~***ENERGY STORAGE SYSTEM DECOMMISSIONING.***~~ ~~*A systematic process that provides documentation and procedures that allow an energy storage system to be safely de-energized, disassembled, readied for shipment or storage, and removed from the premise in accordance with applicable code requirements.*~~

Item 2-18

Chapter 2, Section 202 General Definitions, Inflatable Amusement Device

[The SFM proposes a new definition.]

INFLATABLE AMUSEMENT DEVICE. A device made of flexible fabric or other combustible materials that is inflated by one or more air-blowers providing internal air pressure to maintain its shape. Such a device is designed for recreational activities that allow occupants to bounce, climb, slide, negotiate an obstacle course or participate in interactive play.

Item 2-19

Chapter 2, Section 202 General Definitions, Large-Scale Fire Testing

[The SFM proposes a new definition.]

Large-Scale Fire Testing. *Testing of a representative energy storage system that induces a significant fire into the device under test and evaluates whether the fire will spread to adjacent energy storage system units, surrounding equipment, or through an adjacent fire-resistance-rated barrier.*

Item 2-20

Chapter 2, Section 202 General Definitions, Mobile Food Preparation Vehicles

[The SFM proposes delete the definition of Mobile Food Preparation Vehicles.]

~~**MOBILE FOOD PREPARATION VEHICLES.** Vehicles that contain cooking equipment that produce smoke or grease-laden vapors for the purpose of preparing and serving food to the public. Vehicles intended for private recreation shall not be considered mobile food preparation vehicles.~~

Item 2-21

Chapter 2, Section 202 General Definitions, Business Group B

[The SFM proposes to delete model code language for higher education laboratories.]

[BG] Business Group B. Business Group B occupancy includes, among others, the use of a building or structure, or a portion thereof, for office, professional or service-type transactions, including storage of records and accounts. Business occupancies shall include, but not be limited to, the following:

...
Ambulatory care facilities *serving five or fewer patients*
(see Section 308.3.3, Institutional Group I-2.1 for facilities serving more than five patients)

...
Educational occupancies for students above the 12th grade, ~~including higher education laboratories.~~

...
~~**Higher education laboratories.** Higher education laboratories shall comply with Section 428 of the International Building Code.~~

Item 2-22

Chapter 2, Section 202 General Definitions, Group E, day care facilities

[The SFM proposes to amend the definition for day care facilities.]

[BG] Group E, day child care facilities. This group includes buildings and structures or portions thereof occupied by more than six children ~~2-years~~ 36 months of age and older who receive educational, supervision or personal care services for ~~less~~ fewer than 24 hours per day.

Exception: [SFM] A ~~Day-care~~ child care facility not otherwise classified as an a Group R-3 occupancy, where occupants are not capable of responding to an emergency situation without physical assistance from the staff shall be classified as Group I-4. A maximum of five infants and toddlers are allowed in a Group E child care.

[BG] Within places of worship. Rooms and spaces within places of worship providing such care during religious functions shall be classified as part of the primary occupancy *where not licensed for day child care purposes by the Department of Social Services.*

Item 2-23

Chapter 2, Section 202 General Definitions, Factory Industrial F-1 Moderate-hazard occupancy

[The SFM proposes to repeal California amendments and replace with model code language.]

[BG] Factory Industrial F-1 Moderate-hazard occupancy.

(other examples remain unchanged)

Energy storage systems (ESS) in dedicated-use buildings

~~Energy storage systems (ESS) in dedicated-use buildings~~

Item 2-24

Chapter 2, Section 202 General Definitions, Institutional Group I-2.1

[The SFM proposes to modify the California amendment for Group I-2.1. The use of ambulatory health care facility is incorrect. Ambulatory health care facility would be classified as an occupancy Group B.]

Institutional Group I-2.1 ~~Ambulatory Health Care Facility.~~ A Healthcare facility that receives persons for outpatient medical care that may render the patient incapable of unassisted self-preservation and where each tenant space accommodates more than five such patients.

Item 2-25

Chapter 2, Section 202 General Definitions, Institutional Group I-4, day care facilities

[The SFM proposes to amend the definition for Group 1-4. SFM is proposing to delete subsections of Group I-4 for classification as a Group E and any Special Provisions.]

[BG] Institutional Group I-4, day care facilities. Institutional Group I-4 shall include buildings and structures occupied by more than *six clients* of any age who receive custodial care for less *fewer* than 24 hours by persons other than parents or guardians, relatives by blood, marriage, or adoption, and in a place, other than the home of the *clients* cared for. This group shall include, but not be limited to, the following:

Adult day care

Child day care (not classified as a Group E)

~~**[BG] Classification as Group E.** A child day care facility that provides care for more than five but not more than 100 children *under 2 years of age*, where the rooms in which the children are cared for are located on a level of exit discharge serving such rooms and each of these child care rooms has an exit door directly to the exterior, shall be classified as Group E.~~

~~**Special provisions.** See Section 452.1.4 of the California Building Code for day care locations above or below the first story.~~

Item 2-26

Chapter 2, Section 202 General Definitions, Residential Group R-2

[The SFM proposes to amend the definition for Group R-2.]

[BG] Residential Group R-2. Residential Group R-2 occupancies containing sleeping units or more than two dwelling units where the occupants are primarily permanent in nature, including:

Apartment houses

Large family child care

Small family child care

~~Congregate living facilities (nontransient) with more than 16 occupants~~

~~Congregate residences (nontransient) with more than 16 occupants~~

Boarding houses (nontransient)

Convents

Dormitories

Fraternities and sororities

Monasteries

Hotels (nontransient)

Live/work units

Motels (nontransient)

Vacation timeshare properties

Item 2-27

Chapter 2, Section 202 General Definitions, Photovoltaic (PV) Panel System, Ground-Mounted

[The SFM proposes a new definition.]

Photovoltaic (PV) Panel System, Ground-Mounted. *An independent photovoltaic (PV) panel system without useable space underneath, installed directly on the ground.*

Item 2-28

Chapter 2, Section 202 General Definitions, Photovoltaic (PV) Support Structure Elevated

[The SFM proposes a new definition.]

Photovoltaic (PV) Support Structure, Elevated. *An independent photovoltaic (PV) panel support structure designed with useable space underneath with minimum clear height of 7 feet 6 inches (2286 mm), intended for secondary use such as providing shade or parking of motor vehicles.*

Item 2-29

Chapter 2, Section 202 General Definitions, Smoke Compartment

[The SFM proposes errata to correlate with the California Building Code.]

[BG]SMOKE COMPARTMENT. A space within a building separated from other interior areas of the building enclosed by smoke barriers on all sides, including interior walls and horizontal assemblies ~~the top and bottom.~~

Item 2-30

Chapter 2, Section 202 General Definitions, Toddler

[The SFM proposes a new definition.]

Toddler. *Any child between 18 months to 36 months of age.*

Notation:

Authority: Health and Safety Code Sections 1250, 1569.72, 1569.78, 1568.02, 1502, 1597.44, 1597.45, 1597.46, 1597.54, 1597.65, 13108, 13108.5, 13114, 13143, 13143.2, 13143.6, 13146, 13210, 13211, 17921, 18949.2, 25500 through 25545, Government Code Section 51189, Public Education Code 17074.50

Reference(s): Health and Safety Code Sections 13143, 13211, 18949.2, 25500 through 25545, Government Code Sections 51176, 51177, 51178 and 51179, Public Resources Code Sections 4201 through 4204

**CHAPTER 3
GENERAL REQUIREMENTS**

Item 3-1

Chapter 3, General Requirements

[The SFM proposes to adopt Chapter 3, Sections 301, 304, 308.1.1, 308.5, 312, 313, 314, 315, 316, 317, 320, 321, 322 and carry forward existing amendments.]

Item 3-2

Chapter 3, General Requirements, User Note

[The SFM proposes to delete the reference to mobile food vehicles.]

User note:

About this chapter: Chapter 3 provides general requirements for asphalt kettles, combustible waste material, ignition sources, motion picture projection rooms and film, open burning, recreational fires, portable outdoor fireplaces, open flames, powered industrial trucks and equipment, smoking, vacant premises, vehicle impact protection, fueled equipment, indoor displays, general storage, outdoor pallet storage, hazards to fire fighters, landscaped roofs, laundry carts, ~~mobile food preparation vehicles~~, additive manufacturing (3D printing) and artificial combustible vegetation. These are intended to improve premises safety for everyone, including construction workers, tenants, operations and maintenance personnel, and emergency response personnel.

SECTION 301 GENERAL

Item 3-3

Chapter 3, General Requirements, Section 301.2 Permits

[The SFM proposes to delete the reference to mobile food vehicles.]

301.2 Permits.

Permits shall be required as set forth in Section 105.5 for the activities or uses regulated by Sections 306, 307, 308, 315 and ~~320~~ and 322.

SECTION 315 GENERAL STORAGE

Item 3-4

Chapter 3, General Requirements, Section 315 General Storage, Table 315.7.6(1) Separation Distance Between Wood Pallet Stacks and Buildings

[The SFM proposes to repeal and replace with model code language.]

TABLE 315.7.6(1)

SEPARATION DISTANCE BETWEEN WOOD PALLET STACKS AND BUILDINGS

| WALL CONSTRUCTION | OPENING TYPE | WOOD PALLET SEPARATION DISTANCE (feet) | | |
|---------------------------|---|--|-------------------|--------------|
| | | ≤50 Pallets | 51 to 200 Pallets | >200 Pallets |
| Masonry | None | 2 | 2 | 2 |
| Masonry | Fire-rated glazing with open sprinklers | 2 | 5 | 20 |
| Masonry | Fire-rated glazing | 5 | 10 | 20 |
| Masonry | Plain glass with open sprinklers | 5 | 10 | 20 |
| Noncombustible | None | 5 | 10 | 20 |
| Wood with open sprinklers | — | 5 | 10 | 20 |
| Wood | None | 15 | 30 | 90 |
| Any | Plain glass | 15 | 30 | 90 |

For SI: 1 foot = 304.8 mm.

SECTION 310 SMOKING

Item 3-5

Chapter 3, General Requirements, Section 310 Smoking, Section 310.2 Prohibited Areas

[The SFM proposes to adopt Section 310.2 as amended.]

310.2 Prohibited areas. Smoking shall be prohibited where conditions are such as to make smoking a hazard, and in spaces where flammable or combustible materials are stored or handled.

~~**Exception:** In Group I-2 occupancies, patients shall be permitted to smoke in designated patient care areas based on the clinical needs of the patient.~~

~~**310.2.1 Group I-2.** In Group I-2 occupancies, smoking shall be prohibited in patient care areas or where oxygen is used, stored or handled.~~

Item 3-6

Chapter 3, General Requirements, Section 319 Mobile Food Preparation Vehicles Sections 319.1 through 319.10.3

[The SFM proposes to delete and remove Section 319.]

SECTION 319
MOBILE FOOD PREPARATION VEHICLES
RESERVED

319.1 General. Mobile food preparation vehicles that are equipped with appliances that produce smoke or grease laden vapors shall comply with this section.

319.2 Permit required. Permits shall be required as set forth in Section 105.5.

319.3 Exhaust hood. Cooking equipment that produces grease-laden vapors shall be provided with a kitchen exhaust hood in accordance with Section 606.

319.4 Fire protection. Fire protection shall be provided in accordance with Sections 319.4.1 and 319.4.2.

319.4.1 Fire protection for cooking equipment. Cooking equipment shall be protected by automatic fire extinguishing systems in accordance with Section 904.13.

319.4.2 Fire extinguisher. Portable fire extinguishers shall be provided in accordance with Section 906.4.

319.5 Appliance connection to fuel supply piping. Gas cooking appliances shall be secured in place and connected to fuel supply piping with an appliance connector complying with ANSI Z21.69/CSA 6.16. The connector installation shall be configured in accordance with the manufacturer's installation instructions. Movement of appliances shall be limited by restraining devices installed in accordance with the connector and appliance manufacturer's instructions.

319.6 Cooking oil storage containers. Cooking oil storage containers within mobile food preparation vehicles shall have a maximum aggregate volume not more than 120 gallons (454 L), and shall be stored in such a way as to not be toppled or damaged during transport.

319.7 Cooking oil storage tanks. Cooking oil storage tanks within mobile food preparation vehicles shall comply with Sections 319.7.1 through 319.7.5.2.

319.7.1 Metallic storage tanks. Metallic cooking oil storage tanks shall be listed in accordance with UL 80 or UL 142, and shall be installed in accordance with the tank manufacturer's instructions.

319.7.2 Nonmetallic storage tanks. Nonmetallic cooking oil storage tanks shall be installed in accordance with the tank manufacturer's instructions and shall comply with both of the following:

1. Tanks shall be listed for use with cooking oil, including maximum temperature to which the tank will be exposed during use.

~~2. Tank capacity shall not exceed 200 gallons (757L) per tank.~~

~~319.7.3 Cooking oil storage system components.~~ ~~Metallic and nonmetallic cooking oil storage system components shall include, but are not limited to, piping, connections, fittings, valves, tubing, hose, pumps, vents and other related components used for the transfer of cooking oil.~~

~~319.7.4 Design criteria.~~ ~~The design, fabrication and assembly of system components shall be suitable for the working pressures, temperatures and structural stresses to be encountered by the components.~~

~~319.7.5 Tank venting.~~ ~~Normal and emergency venting shall be provided for cooking oil storage tanks.~~

~~319.7.5.1 Normal vents.~~ ~~Normal vents shall be located above the maximum normal liquid line, and shall have a minimum effective area not smaller than the largest filling or withdrawal connection. Normal vents are not required to vent to the exterior.~~

~~319.7.5.2 Emergency vents.~~ ~~Emergency relief vents shall be located above the maximum normal liquidline, and shall be in the form of a device or devices that will relieve excessive internal pressure caused by an exposure fire. For nonmetallic tanks, the emergency relief vent shall be allowed to be in the form of construction. Emergency vents are not required to discharge to the exterior.~~

~~319.8 LP-gas systems.~~ ~~Where LP-gas systems provide fuel for cooking appliances, such systems shall comply with Chapter 61 and Sections 319.8.1 through 319.8.5.~~

~~319.8.1 Maximum aggregate volume.~~ ~~The maximum aggregate capacity of LP-gas containers transported on the vehicle and used to fuel cooking appliances only shall not exceed 200 pounds (91 kg) propane capacity.~~

~~319.8.2 Protection of container.~~ ~~LP-gas containers installed on the vehicle shall be securely mounted and restrained to prevent movement.~~

~~319.8.3 LP-gas container construction.~~ ~~LP-gas containers shall be manufactured in compliance with the requirements of NFPA 58.~~

~~319.8.4 Protection of system piping.~~ ~~LP-gas system piping, including valves and fittings, shall be adequately protected to prevent tampering, impact damage, and damage from vibration.~~

~~319.8.5 LP-gas alarms.~~ ~~A listed LP-gas alarm shall be installed within the vehicle in the vicinity of LP-gas system components, in accordance with the manufacturer's instructions.~~

319.9 CNG systems. ~~Where CNG systems provide fuel for cooking appliances, such systems shall comply with Sections 319.9.1 through 319.9.4.~~

319.9.1 CNG containers supplying only cooking fuel. ~~CNG containers installed solely to provide fuel for cooking purposes shall be in accordance with Sections 319.9.1.1 through 319.9.1.3.~~

319.9.1.1 Maximum aggregate volume. ~~The maximum aggregate capacity of CNG containers transported on the vehicle shall not exceed 1,300 pounds (590 kg) water capacity.~~

319.9.1.2 Protection of container. ~~CNG containers shall be securely mounted and restrained to prevent movement. Containers shall not be installed in locations subject to a direct vehicle impact.~~

319.9.1.3 CNG container construction. ~~CNG containers shall be an NGV-2 cylinder.~~

319.9.2 CNG containers supplying transportation and cooking fuel. ~~Where CNG containers and systems are used to supply fuel for cooking purposes in addition to being used for transportation fuel, the installation shall be in accordance with NFPA 52.~~

319.9.3 Protection of system piping. ~~CNG system piping, including valves and fittings, shall be adequately protected to prevent tampering, impact damage and damage from vibration.~~

319.9.4 Methane alarms. ~~A listed methane gas alarm shall be installed within the vehicle in accordance with manufacturer's instructions.~~

319.10 Maintenance. ~~Maintenance of systems on mobile food preparation vehicles shall be in accordance with Sections 319.10.1 through 319.10.3.~~

319.10.1 Exhaust system. ~~The exhaust system, including hood, grease-removal devices, fans, ducts and other appurtenances, shall be inspected and cleaned in accordance with Section 606.3.~~

319.10.2 Fire protection systems and devices. ~~Fire protection systems and devices shall be maintained in accordance with Section 901.6.~~

319.10.3 Fuel gas systems. ~~LP-gas containers installed on the vehicle and fuel gas piping systems shall be inspected annually by an approved inspection agency or a company that is registered with the US Department of Transportation to requalify LP-gas cylinders, to ensure that system components are free from damage, suitable for the intended service and not subject to leaking. CNG containers shall be inspected every 3 years in a qualified service facility. CNG containers shall not be used past their expiration date as listed on the manufacturer's container label. Upon satisfactory inspection, the approved~~

inspection agency shall affix a tag on the fuel gas system or within the vehicle indicating the name of the inspection agency and the date of satisfactory inspection.

Item 3-7

Chapter 3, General Requirements, Section 322 Storage of Lithium-Ion and Lithium Metal Batteries

[The SFM proposes a new section for requirements for the storage of Lithium-ion and Lithium metal batteries.]

SECTION 322 **Storage of Lithium-ion and Lithium Metal Batteries**

322.1 General. *The storage of lithium-ion and lithium metal batteries shall comply with Section 322.*

Exceptions:

- 1. Batteries installed in the equipment, devices, or vehicles they are designed to power.*
- 2. Batteries packed for use with the equipment, devices, or vehicles they are designed to power.*
- 3. Batteries in original retail packaging that are rated at 300 watt-hours or less for lithium-ion batteries or contain 25 grams or less of lithium metal for lithium metal batteries.*
- 4. Temporary storage of batteries or battery components during the battery manufacturing process prior to completion of final quality control checks.*

322.2 Permits. *Permits shall be required for an accumulation of more than 15 cubic feet (0.42 m) of lithium-ion and lithium metal batteries, other than batteries listed in the exceptions to Section 321.1, as set forth in Section 105.6.52*

322.3 Fire safety plan. *A fire safety plan shall be provided in accordance with Section 403.10.6. In addition, the fire safety plan shall include emergency response actions to be taken upon detection of a fire or possible fire involving lithium-ion or lithium metal battery storage.*

322.4 Storage requirements. *Lithium-ion and lithium metal batteries shall be stored in accordance with Section 322.4.1, 322.4.2, or 322.4.3, as applicable.*

322.4.1 Limited indoor storage in containers. *Not more than 15 cubic feet (0.42 m) of lithium-ion or lithium metal batteries shall be permitted to be stored in containers in accordance with all of the following.*

1. Containers shall be open-top and constructed of noncombustible materials or shall be approved for battery collection.

2. Individual containers and groups of containers shall not exceed a capacity of 7.5 cubic feet (0.21 m).

3. A second container or group of containers shall be separated by not less than 3 feet (914 mm) of open space, or 10 feet (3048 mm) of space that contains combustible materials.

4. Containers shall be located not less than 5 feet (1524 mm) from exits or exit access doors.

322.4.2 Indoor storage areas. Indoor storage areas for lithium-ion and lithium metal batteries, other than those complying with Section 322.4.1, shall comply with Sections 322.4.2.1 through 322.4.2.6.

322.4.2.1 Technical opinion and report. A technical opinion and report complying with Section 104.8.2 shall be prepared to evaluate the fire and explosion risks associated with the indoor storage area and to make recommendations for fire and explosion protection. The report shall be submitted to the fire code official and shall require the fire code official's approval prior to issuance of a permit. In addition to the requirements of Section 104.8.2, the technical opinion and report shall specifically evaluate the following:

1. The potential for deflagration of flammable gases released during a thermal runaway event.

2. The basis of design for an automatic sprinkler system or other approved fire suppression system. Such design basis shall reference relevant full-scale fire testing or another approved method of demonstrating sufficiency of the recommended design.

322.4.2.2 Construction requirements. Where indoor storage areas for lithium-ion and lithium metal batteries are located in a building with other uses, battery storage areas shall be separated from the remainder of the building by 2-hour rated fire barriers or horizontal assemblies. Fire barriers shall be constructed in accordance with Section 707 of the California Building Code, and horizontal assemblies shall be constructed in accordance with Section 711 of the International Building Code.

Exceptions:

1. Where battery storage is contained in one or more approved prefabricated portable structures providing a complete 2-hour fire resistance rated enclosure, fire barriers and horizontal assemblies are not required.

2. Where battery storage is limited to new batteries in packaging that has been demonstrated to and approved by the fire code official as sufficient to isolate a fire in packaging to the package interior, fire barriers and horizontal assemblies are not required.

321.4.2.3 Fire protection systems. Indoor storage areas for lithium-ion and lithium metal batteries shall be protected by an automatic sprinkler system complying with Section 903.3.1.1 or an approved alternative fire suppression system. The system design shall be based on recommendations in the approved technical opinion and report required by Section 322.4.2.1.

321.4.2.4 Fire alarm systems. Indoor storage areas for lithium-ion and lithium metal batteries shall be provided with an approved automatic fire detection and alarm system complying with Section 907. The fire detection system shall use air-aspirating smoke detection, radiant energy-sensing fire detection, or both.

321.4.2.5 Explosion control. Where the approved technical opinion and report required by Section 322.4.2.1 recommends explosion control, explosion control complying with Section 911 shall be provided.

321.4.2.6 Reduced requirements for storage of partially charged batteries. Indoor storage areas for lithium-ion and lithium metal batteries with a demonstrated state of charge not exceeding 30 percent shall not be required to comply with Sections 322.4.2.1, 322.4.2.2, or 322.4.2.5, provided that procedures for limiting and verifying that the state of charge will not exceed 30 percent have been approved.

321.4.3 Outdoor Storage. Outdoor storage of lithium-ion or lithium metal batteries shall comply with Sections 322.4.3.1 through 322.4.3.3.

322.4.3.1 Distance from storage to exposures. Outdoor storage of lithium-ion or lithium metal batteries, including storage beneath weather protection in accordance with Section 414.6.1 of the California Building Code, shall comply with one of the following.

1. Battery storage shall be located not less than 20 feet (6096 mm) from any building, lot line, public street, public alley, public way or means of egress.

2. Battery storage shall be located not less than 3 feet (914mm) from any building, lot line, public street, public alley, public way or means of egress, where the battery storage is separated by a 2-hour fire-resistance rated assembly without openings or

penetrations and extending 5 feet (1524 mm) above and to the sides of the battery storage area.

3. Battery storage shall be located not less than 3 feet (914 mm) from any building, lot line, public street, public alley, public way or means of egress, where batteries are contained in approved prefabricated portable structures providing a complete 2-hour fire-resistance rated enclosure.

321.4.3.2 Storage area size limits and separation. Outdoor storage areas for lithium-ion or lithium metal batteries, including storage beneath weather-protection in accordance with Section 414.6.1 of the International Building Code, shall not exceed 900 sq. ft. (83.6 m). The height of battery storage in such areas shall not exceed 10 feet (3048 mm). Multiple battery storage areas shall be separated from each other by not less than 10 feet (3048 mm) of open space.

321.4.3.3 Fire detection. Outdoor storage areas for lithium-ion or lithium metal batteries, regardless of whether such areas are open, under weather protection or in a prefabricated portable structure, shall be provided with an approved automatic fire detection and alarm system complying with Section 907. The fire detection system shall use radiant energy-sensing fire detection.

Notation:

Authority: Health and Safety Code Sections 1250, 1569.72, 1569.78, 1568.02, 1502, 1597.44, 1597.45, 1597.46, 1597.54, 1597.65, 13108, 13108.5, 13114, 13143, 13143.2, 13143.6, 13146, 13210, 13211, 17921, 18949.2, 25500 through 25545, Government Code Section 51189, Public Education Code 17074.50

Reference(s): Health and Safety Code Sections 13143, 13211, 18949.2, 25500 through 25545, Government Code Sections 51176, 51177, 51178 and 51179, Public Resources Code Sections 4201 through 4204

CHAPTER 4 EMERGENCY PLANNING AND PREPAREDNESS

Item 4-1

Chapter 4, Emergency Planning and Preparedness

[The SFM proposes to adopt Chapter 4, Sections 401, 402, 403.2, 403.4 – 403.4.4, 403.6-403.7, 403.9-409.3.4, 403.10.2-403.10.5, 403.13-403.13.3, 404.1, 404.5-404.6.6, 407 and carry forward existing amendments.]

SECTION 403

EMERGENCY PREPAREDNESS REQUIREMENTS

Item 4-2

Chapter 4, Emergency Planning and Preparedness, Section 403 Emergency Preparedness Requirements

[The SFM proposes to renumber sections, based on changes in the model code.]

403.1 General. In addition to the requirements of Section 401, occupancies, uses and outdoor locations shall comply with the emergency preparedness requirements set forth in Sections 403.2 through 403.11.3.3. Where a fire safety and evacuation plan is required by Sections 403.2 through ~~403.10.5~~ 403.10.6, evacuation drills shall be in accordance with Section 405 and employee training shall be in accordance with Section 406.

Item 4-3

Chapter 4, Emergency Planning and Preparedness, Section 403 Emergency Preparedness Requirements

[The SFM proposes to renumber sections, based on changes in the model code.]

~~403.5.1~~ 403.4.1 **Group E Occupancies.** ...

~~403.5.1.1~~ 403.4.1.1 **Emergency Pre-Fire Planning.** ...

~~403.5.2~~ 403.4.2 **First emergency evacuation drill.** ...

~~403.5.3~~ 403.4.3 **Time of day.**

~~403.5.4~~ 403.4.4 **Assembly points.** ...

~~403.13~~ 403.12 **Organized camps.** *Group C occupancies shall comply with the requirements of Sections ~~403.13.1~~ 403.12.1 through ~~403.13.3~~ 403.12.3.*

~~403.13.1~~ 403.12.1 **Staff training and evacuation plan.** ...

~~403.13.2~~ 403.12.2 **Resident training.** ...

~~403.13.3~~ 403.12.3 **Fire drills.** ...

Item 4-4

Chapter 4, Emergency Planning and Preparedness, Section 403 Emergency Preparedness Requirements

[The SFM proposes to renumber sections, based on changes in the model code.]

403.10 Special uses. Special uses shall be in accordance with Sections 403.10.1 through ~~403.10.5~~ 403.10.6.

Item 4-5

Chapter 4, Emergency Planning and Preparedness, Section 403 Emergency Preparedness Requirements, Section 403.10.6 and 403.10.6.1

[The SFM proposes Section 403.10.6 and Section 403.10.6.1 for storage of batteries.]

403.10.6 Lithium-ion and lithium metal batteries. An approved fire safety and evacuation plan in accordance with Section 404 shall be prepared and maintained for occupancies that involve activities for the research and development, testing, manufacturing, handling, storage of lithium-ion batteries or lithium metal batteries or the repair or servicing of vehicles powered by lithium-ion batteries or lithium metal batteries.

Exceptions. A fire safety and evacuation plan is not required for the storage or merchandizing of any of the following:

1. New or refurbished batteries installed for use in the equipment or vehicles they are designed to power
2. New or refurbished batteries packed for use with the equipment or vehicles they are designed to power for merchandizing purposes;
3. New or refurbished lithium-ion batteries rated at no more than 300 Watt hours and lithium metal batteries containing no more than 25 grams of lithium metal in their original retail packaging;
4. The storage, repair and charging activities in detached one- and two family dwellings and townhouses, provided that such devices are for personal use.

403.10.6.1 Mitigation planning. The approved fire safety and evacuation plan shall include thermal runaway event mitigation measures addressing activities undertaken to prevent thermal runaway, early detection of a thermal runaway event and mitigations measures to be undertaken to limit the size and impact of the event on occupants and the facility.

Notation:

Authority: Health and Safety Code Sections 1250, 1569.72, 1569.78, 1568.02, 1502, 1597.44, 1597.45, 1597.46, 1597.54, 1597.65, 13108, 13108.5, 13114, 13143, 13143.2, 13143.6, 13146, 13210, 13211, 17921, 18949.2, 25500 through 25545, Government Code Section 51189, Public Education Code 17074.50

Reference(s): Health and Safety Code Sections 13143, 13211, 18949.2, 25500 through 25545, Government Code Sections 51176, 51177, 51178 and 51179, Public Resources Code Sections 4201 through 4204

CHAPTER 5 FIRE SERVICE FEATURES

Item 5-1

Chapter 5, Fire Service Features

[The SFM proposes to adopt Chapter 5 and carry forward existing amendments.]

SECTION 508 FIRE COMMAND CENTER

Item 5-2

Chapter 5, Fire Service Features, Section 508.1.5 Storage

[The SFM proposes reorganize existing amendments from 508.1.6 Item 19 to a more appropriate location in 508.1.5.]

508.1.5 Storage. Storage unrelated to operation of the fire command center shall be prohibited. *Fire command centers shall not be used for the housing of any boiler, heating unit, generator, combustible storage, or similar hazardous equipment or storage.*

508.1.6 Required features. The fire command center shall comply with NFPA 72 and shall contain the following features:

(Items 1 and 2 remain unchanged)

3. *Fire alarm system zoning annunciator panel required by Section 907.6.4.3.*
(Items 4-18 remain unchanged)

19. *A master switch for unlocking elevator lobby doors permitted by Section 1010.1.9.13.*

~~*Fire command centers shall not be used for the housing of any boiler, heating unit, generator, combustible storage, or similar hazardous equipment or storage.*~~

Item 5-3

Chapter 5, Fire Service Features, Section 508.1.7.1 Ventilation

[The SFM proposes renumber section 508.1.7 based on model code changes.]

~~**508.1.7**~~ **508.1.8 Ventilation.** ...

Notation:

Authority: Health and Safety Code Sections 1250, 1569.72, 1569.78, 1568.02, 1502, 1597.44, 1597.45, 1597.46, 1597.54, 1597.65, 13108, 13108.5, 13114, 13143, 13143.2, 13143.6, 13146, 13210, 13211, 17921, 18949.2, 25500 through 25545, Government

Code Section 51189, Public Education Code 17074.50

Reference(s): Health and Safety Code Sections 13143, 13211, 18949.2, 25500 through 25545, Government Code Sections 51176, 51177, 51178 and 51179, Public Resources Code Sections 4201 through 4204

CHAPTER 6 BUILDING SERVICES AND SYSTEMS

Item 6-1

Chapter 6, Building Services And Systems

[The SFM proposes to adopt Chapter 6 and carry forward existing amendments as modified below.]

SECTION 604 ELEVATOR OPERATION, MAINTENANCE AND FIRE SERVICE KEYS

Item 6-2

Chapter 6, Building Services And Systems, Section 603.1.2 Healthcare Facilities

[The SFM proposes to add a reference to The California Electrical Code.]

603.1.2 Healthcare facilities. In Group I-2 facilities, ambulatory care facilities and outpatient clinics, the electrical systems and equipment shall be maintained and tested in accordance with NFPA 99 and Article 517 of the California Electrical Code.

Item 6-3

Chapter 6, Building Services And Systems, Section 603.4 working space and clearances

[The SFM proposes errata.]

603.4 Working space and clearances. Working space around electrical equipment shall be provided in accordance with Section 110.26 of NFPA 70 for electrical equipment rated 1,000 volts or less, and Section ~~110.33~~ 110.32 of ~~NFPA 70~~ the California Electrical Code for electrical equipment rated over 1,000 volts. The minimum required working space shall be not less than 30 inches (762 mm) in width, 36 inches (914 mm) in depth and 78 inches (1981 mm) in height in front of electrical service equipment. Where the electrical service equipment is wider than 30 inches (762 mm), the minimum working space shall be not less than the width of the equipment. Storage of materials shall not be located within the designated working space.

Item 6-4

Chapter 6, Building Services And Systems, Section 603.5.1.1

[The SFM proposes to delete references to any Group I-2 conditions.]

603.5.1.1 Listing in Group I-2 occupancies and ambulatory care facilities. In Group I-2 occupancies and ambulatory care facilities, relocatable power taps shall be listed in accordance with UL 1363 except under the following conditions:

1. In Group I-2, ~~Condition 2~~ occupancies, relocatable power taps providing power to patient care-related electrical equipment in the patient care vicinity, as defined by NFPA 99, shall be listed in accordance with UL 1363A or UL 60601-1.
2. In Group I-2, ~~Condition 4~~ facilities, in care recipient rooms using line-operated patient care-related electrical equipment, relocatable power taps in the patient care vicinity, as defined by NFPA 99, shall be listed in accordance with UL 1363A or UL 60601-1.
3. In ambulatory care facilities, relocatable power taps providing power to patient care-related electrical equipment in the patient care vicinity, as defined by NFPA 99, shall be listed in accordance with UL 1363A or UL 60601-1.

Item 6-5

Chapter 6, Building Services And Systems, Section 604.3.5 Emergency Hoistway Venting

[The SFM proposes renumber section based on model code changes.]

~~606.2.5~~ **604.3.5 Emergency Hoist-way Venting.** ...

Item 6-6

Chapter 6, Building Services And Systems, Section 604.5.3 Storage within elevator lobbies

[The SFM proposes repeal California amendment and replace with model code language.]

~~**606.1.1 Storage within elevator lobbies.** Where hoistway opening protection is required by Section 3006.2 of the California Building code, elevator lobbies shall be maintained free of storage.~~

604.5.3 Storage within elevator lobbies. Where hoist-way opening protection is required by Section 3006.2 of the California Building code, elevator lobbies shall be maintained free of storage.

Item 6-7

Chapter 6, Building Services And Systems, Section 604.6.3 Shunt Trip

[The SFM proposes renumber section number based on model code changes.]

~~606.8.5~~ 604.6.3 Shunt trip. ...

Item 6-8

**Chapter 6, Building Services And Systems, Section 604.6.4 through 604.6.4.4
Emergency Hoist-way Venting**

[The SFM proposes renumber section number based on model code changes.]

~~606.8.6~~ 604.6.4 Emergency Hoist-way Venting. ...

~~606.8.6.1~~ 604.6.4.1 Location of vents. ...

~~606.8.6.2~~ 604.6.4.2 Area of vents. ...

~~606.8.6.3~~ 604.6.4.3 Operation of vents. ...

~~606.8.6.4~~ 604.6.4.4 Reduced vent area. ...

**SECTION 605
FUEL-FIRED APPLIANCES**

Item 6-9

Chapter 6, Building Services And Systems, Section 605.7 Incinerators

[The SFM proposes update the NFPA 82 standard to the most current edition.]

605.7 Incinerators. Commercial, industrial and residential type incinerators and chimneys shall be constructed in accordance with the *California Building Code* and the *California Mechanical Code*. *Unless other approved means are provided for the prompt disposal of rubbish, an approved incinerator shall be provided and maintained for the disposal of combustible waste. Incinerators shall be constructed, located, and maintained in such manner that waste material can be safely burned at any hour of the day, where local ordinances permit. Fuel-fired and garbage burning incinerators shall be constructed and maintained in conformance with NFPA 82-2009 2019 Incinerators, Waste and Linen Handling Systems and Equipment or U.L. 791-2006 Standard for Residential Incinerators, whichever is applicable.*

Notation:

Authority: Health and Safety Code Sections 1250, 1569.72, 1569.78, 1568.02, 1502, 1597.44, 1597.45, 1597.46, 1597.54, 1597.65, 13108, 13108.5, 13114, 13143, 13143.2, 13143.6, 13146, 13210, 13211, 17921, 18949.2, 25500 through 25545, Government Code Section 51189, Public Education Code 17074.50

Reference(s): Health and Safety Code Sections 13143, 13211, 18949.2, 25500 through 25545, Government Code Sections 51176, 51177, 51178 and 51179, Public Resources Code Sections 4201 through 4204

CHAPTER 7 FIRE AND SMOKE PROTECTION FEATURES

Item 7-1

Chapter 7, Fire and Smoke Protection Features

[The SFM proposes to adopt Chapter 7 and carry forward existing amendments.]

SECTION 701 GENERAL

Item 7-2

Chapter 7, Fire and Smoke Protection Features, Section 701.6 Owner's responsibility

[The SFM proposes to repeal California amendments and replace with model code language.]

[TALL WOOD AND HEAVY TIMBER 2019 INTERVENING PROPOSALS]
[Associated Sections 701.6, 914.3.1.2, 3308.9]

701.6 Owner's responsibility. The owner shall maintain an inventory of all required fire-resistance-rated construction, construction installed to resist the passage of smoke and the construction included in Sections 703 through 707 ~~and Sections 602.4.1 and 602.4.2 of the~~ and Sections 602.4.1 and 602.4.2 of the *California Building Code*. Such construction shall be visually inspected by the owner annually and properly repaired, restored or replaced where damaged, altered, breached or penetrated. Records of inspections and repairs shall be maintained. Where concealed, such elements shall not be required to be visually inspected by the owner unless the concealed space is accessible by the removal or movement of a panel, access door, ceiling tile or similar movable entry to the space.

Item 7-3

Chapter 7, Fire and Smoke Protection Features, Section 708 Exterior Walls

[The SFM proposes to renumber section 708 based on changes in the model code.]

SECTION 708-709 EXTERIOR WALLS

~~708.1~~ 709.1 Exterior graphics on exterior walls of high-rise buildings. ...

Notation:

Authority: Health and Safety Code Sections 1250, 1569.72, 1569.78, 1568.02, 1502, 1597.44, 1597.45, 1597.46, 1597.54, 1597.65, 13108, 13108.5, 13114, 13143, 13143.2, 13143.6, 13146, 13210, 13211, 17921, 18949.2, 25500 through 25545, Government Code Section 51189, Public Education Code 17074.50

Reference(s): Health and Safety Code Sections 13143, 13211, 18949.2, 25500 through 25545, Government Code Sections 51176, 51177, 51178 and 51179, Public Resources Code Sections 4201 through 4204

**CHAPTER 8
INTERIOR FINISH, DECORATIVE MATERIALS AND FURNISHINGS**

Item 8-1

Chapter 8, Interior Finish, Decorative Materials And Furnishings

[The SFM proposes to adopt Chapter 8 and carry forward amendments to Sections 803.3, Table 803.3, 803.5.1.2, 803.5.1.2, 803.5.1.3, 804.1, 804.3.3.1, 804.3.3.2, 804.3.3.3, 806.1.4, 806.2, 806.4, 807.3, 807.4-805.1.2.2, 807.5.3-807.5.3.4, 807.5.4, 807.5.6- 807.5.7.1]

[The SFM proposes to not adopt Chapter 8 Sections 805, 806.1-806.1.3, 807.1-807.2, 807.5.1.3, 807.5.1.4, 807.5.2-807.5.2.3, 808]

**SECTION 805
UPHOLSTERED FURNITURE AND MATTRESSES
IN NEW AND EXISTING BUILDINGS**

Item 8-2

Chapter 8, Interior Finish, Decorative Materials And Furnishings, Sections 805.1 – 805.1.2.3 Group I-2, Condition 2

[The SFM proposes to modify Chapter 8, Section 805.1 and delete Sections 805.1.1-805.1.2.3 provisions for Group I-1, Condition 2 because the occupancy group is not used in California.]

805.1 Group I-1, Condition 2. Reserved. The requirements in Sections 805.1.1 through 805.1.2 shall apply to facilities in Group I-1, Condition 2.

~~805.1.1 Upholstered furniture.~~ Newly introduced upholstered furniture shall meet the requirements of Sections 805.1.1.1 through 805.1.1.3.

~~805.1.1.1 Ignition by cigarettes.~~ Newly introduced upholstered furniture shall be shown to resist ignition by cigarettes as determined by tests conducted in accordance with one of the following:

~~1. Mocked-up composites of the upholstered furniture shall have a char length not exceeding 1.5 inches (38 mm) when tested in accordance with NFPA 261.~~

~~2. The components of the upholstered furniture shall meet the requirements for Class I when tested in accordance with NFPA 260.~~

~~**805.1.1.2 Heat release rate.** Newly introduced upholstered furniture shall have limited rates of heat release when tested in accordance with ASTM E1537 or California Technical Bulletin 133, as follows:~~

~~1. The peak rate of heat release for the single upholstered furniture item shall not exceed 80 kW.~~

~~**Exception:** Upholstered furniture in rooms or spaces protected by an approved automatic sprinkler system installed in accordance with Section 903.3.1.1.~~

~~2. The total heat released by the single upholstered furniture item during the first 10 minutes of the test shall not exceed 25 megajoules (MJ).~~

~~**Exception:** Upholstered furniture in rooms or spaces protected by an approved automatic sprinkler system installed in accordance with Section 903.3.1.1.~~

~~**805.1.1.3 Identification.** Upholstered furniture shall bear the label of an approved agency, confirming compliance with the requirements of Sections 805.1.1.1 and 805.1.1.2.~~

~~**805.1.2 Mattresses.** Newly introduced mattresses shall meet the requirements of Sections 805.1.2.1 through 805.1.2.3.~~

~~**805.1.2.1 Ignition by cigarettes.** Newly introduced mattresses shall be shown to resist ignition by cigarettes as determined by tests conducted in accordance with DOC 16 CFR Part 1632 and shall have a char length not exceeding 2 inches (51 mm).~~

~~**805.1.2.2 Heat release rate.** Newly introduced mattresses shall have limited rates of heat release when tested in accordance with ASTM E1590 or California Technical Bulletin 129, as follows:~~

~~1. The peak rate of heat release for the single mattress shall not exceed 100 kW.~~

Exception: ~~Mattresses in rooms or spaces protected by an approved automatic sprinkler system installed in accordance with Section 903.3.1.1.~~

~~2. The total heat released by the single mattress during the first 10 minutes of the test shall not exceed 25 MJ.~~

Exception: ~~Mattresses in rooms or spaces protected by an approved automatic sprinkler system installed in accordance with Section 903.3.1.1.~~

~~**805.1.2.3 Identification.** Mattresses shall bear the label of an approved agency, confirming compliance with the requirements of Sections 805.2.2.1 and 805.2.2.2.~~

SECTION 806 NATURAL DECORATIVE VEGETATION IN NEW AND EXISTING BUILDINGS

Item 8-3

Chapter 8, Interior Finish, Decorative Materials And Furnishings, Section 806.1.4 Fire-retardant treatments for natural cut trees

[The SFM proposes to amend Section 806.1.4 to comply with Title 19 regulations.]

806.1.4 Fire-retardant treatments for natural cut trees. Where fire-retardant treatments are applied to natural cut trees, the fire-retardant treatment shall be tested by an approved agency and shall comply with both Test Method 1 and Test Method 2 of ASTM E3082. shall be treated and maintained in a flame-retardant condition by means of a flame-retardant solution or process approved by the State Fire Marshal, as set forth in California Code of Regulations, Title 19, Division 1, Chapter 8.

SECTION 807 DECORATIVE MATERIALS AND ARTIFICIAL DECORATIVE VEGETATION IN NEW AND EXISTING BUILDINGS

Item 8-4

Chapter 8, Interior Finish, Decorative Materials And Furnishings, Section 807.4 Artificial Decorative Vegetation

[The SFM proposes to correct references and delete reference to Condition 1, modifying Group I-2.]

807.4 Artificial decorative vegetation. Artificial decorative vegetation shall comply with this section and the requirements of Sections ~~806.2~~ 807.2 and ~~806.3.~~ 807.3. Natural decorative vegetation shall comply with Section 806.

Exception: Testing of artificial vegetation is not required in Group I-2, ~~Condition 4~~; Group R-2; Group R-3; or Group R-4 occupancies equipped throughout with an approved automatic sprinkler system installed in accordance with Section 903.3.1, where such artificial vegetation complies with the following:

Item 8-5

**Chapter 8, Interior Finish, Decorative Materials And Furnishings, Section 807.5.3
Groups I-2, and R-2.1**

[The SFM proposes to amend Section 807.5.3 by deleted the reference to I-1.2 which is not an occupancy in California and correct it to I-2.1 which was the intended occupancy.]

807.5.3 Groups I-2, ~~I-1.2~~ I-2.1 and R-2.1. In Groups I-2, ~~I-1.2~~ I-2.1 and R-2.1 occupancies, combustible decorative materials shall comply with Sections 807.5.3.1 through 807.5.3.4.

Item 8-6

**Chapter 8, Interior Finish, Decorative Materials And Furnishings, Section 807.5.3.3
In Groups I-2, and I-2.1**

[The SFM proposes to amend Section 807.5.3.3 by adding a comma between I-2 and I-2.1 and then add R-2.1, which was missed in the last printed edition.]

807.5.3.3 In Groups I-2, and I-2.1 and R-2.1. In Groups I-2, ~~I-2.1~~ and R-2.1 occupancies equipped throughout with an approved automatic sprinkler system installed in accordance with Section 903.3.1.1, combustible decorative materials placed on walls shall be limited to not more than 30 percent of the wall area to which they are attached.

Item 8-7

**Chapter 8, Interior Finish, Decorative Materials And Furnishings, Section 807.5.3.4
Other areas in Groups I-2, and I-2.1 and R-2.1**

[The SFM proposes to amend Section 807.5.3.4 by correcting the error of I-1.2 to the correct occupancy of I-2.1.]

807.5.3.4 Other areas in Groups I-2, ~~I-1.2~~ I-2.1 and R-2.1. In Groups I-2, ~~I-1.2~~ I-2.1 and R-2.1 occupancies, in areas not equipped throughout with an approved automatic sprinkler system, combustible decorative materials shall be of such limited quantities that

Notation:

Authority: Health and Safety Code Sections 1250, 1569.72, 1569.78, 1568.02, 1502, 1597.44, 1597.45, 1597.46, 1597.54, 1597.65, 13108, 13108.5, 13114, 13143, 13143.2, 13143.6, 13146, 13210, 13211, 17921, 18949.2, 25500 through 25545, Government

Code Section 51189, Public Education Code 17074.50

Reference(s): Health and Safety Code Sections 13143, 13211, 18949.2, 25500 through 25545, Government Code Sections 51176, 51177, 51178 and 51179, Public Resources Code Sections 4201 through 4204

CHAPTER 9 FIRE PROTECTION AND LIFE SAFETY SYSTEMS

Item 9-1

Chapter 9, Fire Protection And Life Safety Systems

[The SFM proposes to adopt Chapter 9 and carry forward existing amendments. Proposed modifications are shown below.]

SECTION 901 GENERAL

Item 9-2

Chapter 9, Fire Protection And Life Safety Systems, Section 901.5 Installation acceptance testings

[The SFM proposes make an editorial change.]

901.5 Administration of Installation acceptance testing. Fire protection and life safety systems and appurtenances thereto shall be subject to acceptance tests as contained in the installation standards and as approved by the fire code official. The fire code official shall be notified before any required acceptance testing.

Item 9-3

Chapter 9, Fire Protection And Life Safety Systems, Table 901.6.1 Fire Protection System Maintenance

[The SFM proposes make an editorial change.]

TABLE 901.6.1 FIRE PROTECTION SYSTEM INSPECTION, TESTING AND MAINTENANCE STANDARDS

Item 9-4

Chapter 9, Fire Protection And Life Safety Systems, Section 901.7 Systems out of service

[The SFM proposes add the reference to the California NFPA 25 Edition.]

901.7 Systems out of service. Where a required fire protection system is out of service, the fire department and the fire code official shall be notified immediately and, where required by the fire code official, the building shall be either evacuated or an approved fire watch shall be provided for all occupants left unprotected by the shutdown until the fire protection system has been returned to service.

Where utilized, fire watches shall be provided with not less than one approved means for notification of the fire department and their only duty shall be to perform constant patrols of the protected premises and keep watch for fires.

Exception: Facilities with an approved notification and impairment management program. The notification and impairment program for water-based fire protection systems shall comply with California NFPA 25.

**SECTION 903
AUTOMATIC SPRINKLER SYSTEMS**

Item 9-5

Chapter 9, Fire Protection And Life Safety Systems,

[The SFM proposes errata.]

903.1.1 Alternative protection. Alternative automatic fire-extinguishing systems complying with Section 904 shall be permitted instead of automatic sprinkler system protection where recognized by the applicable standard and approved by the fire code official.

Item 9-6

Chapter 9, Fire Protection And Life Safety Systems, Section

[The SFM proposes errata.]

903.5 Testing and maintenance. Automatic Sprinkler systems shall be tested and maintained in accordance with Section 901.

Item 9-7

**Chapter 9, Fire Protection And Life Safety Systems, Section 903.2.10.2
Mechanical access enclosed parking garages**

[The SFM proposes repeal California amendment and replace with model code language.]

[Associated Sections 903.2.10.2]

~~903.2.10.2 Mechanical-access enclosed parking garages.~~ ~~An approved automatic sprinkler system shall be provided throughout buildings used for the storage of motor vehicles in a mechanical-access enclosed parking garage. The portion of the building that contains the mechanical-access enclosed parking garage shall be protected with a specially engineered automatic sprinkler system.~~

903.2.10.2 Mechanical-access enclosed parking garages. An approved automatic sprinkler system shall be provided throughout buildings used for the storage of motor vehicles in a mechanical-access enclosed parking garage. The portion of the building that contains the mechanical-access enclosed parking garage shall be protected with a specially engineered automatic sprinkler system.

Item 9-8

Chapter 9, Fire Protection And Life Safety Systems, Table 903.2.11.6 Additional Required Fire Protection Systems

[The SFM proposes repeal California amendment and replace with model code language and add an amendment as shown below.]

**TABLE 903.2.11.6
ADDITIONAL REQUIRED FIRE POTECTION SYSTEMS**

| SECTION | SUBJECT |
|---|---|
| <u>322.2</u> | <u>Lithium-ion and lithium metal battery storage</u> |
| ... | ... |
| 903.2.10.2 <u>903.2.10.2</u> | Mechanical-access enclosed parking garages <u>Mechanical-access enclosed parking garages</u> |

| ... | |
|--|--|
| SECTION | SUBJECT |
| Table 1206.7, Table 1206.8, Table 1206.9, Table 1206.10 <u>Table 1206.7, Table 1206.8, Table 1206.9, Table 1206.10</u> | Stationary and mobile energy storage systems <u>Stationary and mobile energy storage systems</u> |

...

Item 9-9

Chapter 9, Fire Protection And Life Safety Systems, Section 903.2.21

[The SFM proposes a new section for sprinkler protection of exterior entrance covers.]

903.2.21 Required exterior entrance covers. An automatic sprinkler system shall be

provided throughout covered exterior entrances required by California Building Code Section 11B-206.4.10 or Section 1224.33.2.1.

Item 9-10

Chapter 9, Fire Protection And Life Safety Systems, Section 903.3.1.1.1 Exempt locations

[The SFM proposes repeal California amendment and move items 6 and 7 to a new section number. Section 903.3.1.1.1 requires the substitution of smoke detection when sprinklers are not provided. Solar photovoltaic panel structures are installed outdoors. Substituting smoke detectors is not appropriate at such locations.]

903.3.1.1.1 Exempt locations.

...

6. Elevator hoistways, machine rooms, machinery spaces, control spaces, and control rooms in accordance with Section 3005.4.1 of the California Building Code.

~~6—Solar photovoltaic panel structures with no use underneath. Signs may be provided, as determined by the enforcing agency prohibiting any use underneath including storage.~~

~~7—Solar photovoltaic (PV) panels supported by framing that have sufficient uniformly distributed and unobstructed openings throughout the top of the array (horizontal plane) to allow heat and gases to escape, as determined by the enforcing agency.~~

903.3.1.1.3 Solar photovoltaic power systems. Automatic sprinklers shall not be required in the following areas.

1. Solar photovoltaic panel structures with no use underneath. Signs may be provided, as determined by the enforcing agency prohibiting any use underneath including storage.

2. Solar photovoltaic (PV) panels supported by framing that have sufficient uniformly distributed and unobstructed openings throughout the top of the array (horizontal plane) to allow heat and gases to escape, as determined by the enforcing agency.

SECTION 906 PORTABLE FIRE EXTINGUISHERS

Item 9-11

Chapter 9, Fire Protection And Life Safety Systems, Section 906.1 Where Required

[The SFM proposes to carry forward existing amendments and delete new model code language.]

906.1 Where required.

Portable fire extinguishers shall be installed in all of the following locations:

1. In new and existing Group A, B, E, F, H, I, M, R-1, R-2, R-4 and S occupancies.

Exception:

~~4. In Group R-2 occupancies, portable fire extinguishers shall be required only in locations specified in Items 2 through 6 where each dwelling unit is provided with a portable fire extinguisher having a minimum rating of 1-A:10-B:C.~~

~~2. In Group E occupancies, portable fire extinguishers shall be required only in locations specified in Items 2 through 6 where each classroom is provided with a portable fire extinguisher having a minimum rating of 2-A:20-B:C.~~

~~3. In storage areas of Group S occupancies where forklift, powered industrial truck or powered cart operators are the primary occupants, fixed extinguishers, as specified in NFPA 10, shall not be required where in accordance with all of the following:~~

~~3.1. Use of vehicle-mounted extinguishers shall be approved by the fire code official.~~

~~3.2. Each vehicle shall be equipped with a 10-pound, 40A:80B:C extinguisher affixed to the vehicle using a mounting bracket approved by the extinguisher manufacturer or the fire code official for vehicular use.~~

~~3.3. Not less than two spare extinguishers of equal or greater rating shall be available on-site to replace a discharged extinguisher.~~

~~3.4. Vehicle operators shall be trained in the proper operation, use and inspection of extinguishers.~~

~~3.5. Inspections of vehicle-mounted extinguishers shall be performed daily.~~

2. Within 30 feet (9144 mm) distance of travel from commercial cooking equipment and from domestic cooking equipment in Group I-1, I-2, Condition 1; and R-2 college dormitory occupancies.

...

(Items 3-5 remain unchanged from model code)

6. Special-hazard areas, including but not limited to laboratories, computer rooms and generator rooms, where required by the fire code official.

Exception: ~~Portable fire extinguishers are not required at normally unmanned Group U occupancy buildings or structures where a portable fire extinguisher suitable to the hazard of the location is provided on the vehicle of visiting personnel.~~

...
(Items 7-9 amendments carry forward unchanged)

SECTION 907 FIRE ALARM AND DETECTION SYSTEMS

Item 9-12

Chapter 9, Fire Protection And Life Safety Systems, Section 907.2 Where Required- new buildings and structures

[The SFM proposes to carry forward existing amendments and correcting a reference number.]

907.2 Where required—new buildings and structures. An approved fire alarm system installed in accordance with the provisions of this code and NFPA 72 shall be provided in new buildings and structures in accordance with Sections 907.2.1 through ~~907.2.23~~ 907.2.29 and provide occupant notification in accordance with Section 907.5, unless other requirements are provided by another section of this code.

Item 9-13

Chapter 9, Fire Protection And Life Safety Systems, Section 907.2.3 Group E

[The SFM proposes to carry forward existing amendments and delete new model code language.]

907.2.3 Group E. A manual *and automatic* fire alarm system that initiates the occupant notification signal utilizing an emergency voice/alarm communication system meeting the requirements of Section 907.5.2.2 and installed in accordance with Section 907.6 shall be installed in Group E occupancies *with an occupant load of 50 or more persons or containing more than one classroom or one or more rooms used for Group E or I-4 day child care purposes in accordance with this section.* Where automatic sprinkler systems or smoke detectors are installed, such systems or detectors shall be connected to the building fire alarm system. *One additional manual fire alarm box shall be located at the administration office or location approved by the AHJ.*

Exceptions:

1. *For public school state funded construction projects see Section 907.2.29.*
2. *For public schools see Section 907.2.3.7.*
3. *For private schools see Section 907.2.3.8.*

~~3. Manual fire alarm boxes shall not be required in Group E occupancies where all of the following apply:~~

~~3.1. Interior corridors are protected by smoke detectors.~~

~~3.2. Auditoriums, cafeterias, gymnasiums and similar areas are protected by heat detectors or other approved detection devices.~~

~~3.3. Shops and laboratories involving dusts or vapors are protected by heat detectors or other approved detection devices.~~

~~3.4. Manual activation is provided from a normally occupied location.~~

Item 9-14

Chapter 9, Fire Protection And Life Safety Systems, Sections 907.2.6.4 Group I-4

[The SFM proposes to add smoke detection requirements for Group I-4 occupancies.]

907.2.6.4 Group I-4. *An automatic smoke detection system shall be installed throughout the Group I-4 including contiguous day rooms, group activity spaces, and other common spaces normally occupied by the clients.*

Item 9-15

Chapter 9, Fire Protection And Life Safety Systems, Sections 907.2.6.5 Large Family Day-Care

[The SFM proposes to renumber Section 907.2.6.4 to follow the addition of I-4 requirements.]

907.2.6.4 907.2.6.5 Large family day-care. ...

Item 9-16

Chapter 9, Fire Protection And Life Safety Systems, Sections 907.2.11.2.1 through 907.2.11.2.5

[The SFM proposes to carry forward existing amendments and renumber based on changes to the model code.]

907.2.10.2.1 907.2.11.2.1 Licensed Group R-2.1 occupancies. ...

907.2.10.2.1.1 907.2.11.2.1.1 Smoke alarms. *Single- and multiple-station smoke alarms shall be installed in accordance with Section 907.2.4011.*

907.2.10.2.2 907.2.11.2.2 Group I-4 occupancies. ...

907.2.10.2.3 907.2.11.2.3 Group R-3.1. ...

~~907.2.10.2.4~~ 907.2.11.2.4 Smoke alarms. ...

~~907.2.10.2.5~~ 907.2.11.2.5 Existing Group R occupancies. ...

Item 9-17

Chapter 9, Fire Protection And Life Safety Systems, Sections 907.2.11.3 and 907.1.11.4

[The SFM proposes to carry forward existing amendments and amend the reference Section number based on changes to the model code.]

907.2.11.3 Installation near cooking appliances. See Section ~~907.2.10.8~~ 907.2.11.8.

907.2.11.4 Installation near bathrooms. See Section ~~907.2.10.8~~ 907.2.11.8.

Item 9-18

Chapter 9, Fire Protection And Life Safety Systems, Section 907.2.11.8 Specific Location Requirements

[The SFM proposes to modify existing amendments and amend the reference Section number based on changes to both the NFPA 72 standards and the model code.]

~~907.2.10.8~~ 907.2.11.8 Specific location requirements.

Extract from NFPA 72 Section ~~29.8.3.4~~ 29.11.3.4 Specific Location Requirements.*

This extract has been provided by NFPA as amended by for the Office of the State Fire Marshal and adopted adoption by reference as follows:

~~29.8.3.4~~ 29.11.3.4 Specific Location Requirements. *The installation of smoke alarms and smoke detectors shall comply with the following requirements:*

(1) Smoke alarms and smoke detectors shall not be located where ambient conditions, including humidity and temperature, are outside the limits specified by the manufacturer's published instructions.

(2) Smoke alarms and smoke detectors shall not be located within unfinished attics or garages or in other spaces where temperatures can fall below 40°F (4°C) or exceed 100°F (38°C).

(3) Where the mounting surface could become considerably warmer or cooler than the room, such as a poorly insulated ceiling below an unfinished attic or an exterior wall, smoke alarms and smoke detectors shall be mounted on an inside wall.

(4) Smoke alarms or and smoke detectors shall not be installed within an area of exclusion determined by a 10 ft. (3.0m) radial distance along a horizontal flow path from a stationary or fixed cooking appliance, unless

listed for installation in close proximity to cooking appliances. Smoke alarms and smoke detectors installed between 10 ft. (3.0m) and 20 ft. (6.1m) along a horizontal flow path from a stationary or fixed appliance shall be equipped with an alarm-silencing means or use photoelectric detection. be installed a minimum of 20 feet horizontal distance from a permanently installed cooking appliance.

Exceptions:

~~1. Ionization smoke alarms with an alarm silencing switch or Photoelectric smoke alarms shall be permitted to be installed 10 feet (3 m) or greater from a permanently installed cooking appliance.~~

~~2. Photoelectric smoke alarms shall be permitted to be installed greater than 6 feet (1.8 m) from a permanently installed cooking appliance where the kitchen or cooking area and adjacent spaces have no clear interior partitions and the 10-foot distances would prohibit the placement of a smoke alarm or smoke detector required by other sections of the code.~~

~~3. Smoke alarms listed for use in close proximity to a permanently installed cooking appliance.~~

(5) Smoke alarms or smoke detectors that use photoelectric detection shall be permitted for installation at a radial distance greater than 6 ft. (1.8m) from any stationary or fixed cooking appliance when both of the following conditions are met:

(a) The kitchen or cooking area and adjacent spaces have no clear partitions or headers.

(b) The 10 ft. (3.0m) area of exclusion would prohibit the placement of a smoke alarm or smoke detector required by other sections of this code.

~~Installation near bathrooms. Smoke alarms shall be installed not less than a 3-foot (0.91 m) horizontal distance from the door or opening of a bathroom that contains a bathtub or shower unless this would prevent placement of a smoke alarm required by other sections of the code.~~

(6) Effective January 1, 2022, smoke alarms and smoke detectors installed between 6 ft. (1.8 m) and 20 ft. (6.1 m) along a horizontal flow path from a stationary or fixed cooking appliance shall be listed for resistance to common nuisance sources from cooking. ~~Smoke alarms and smoke detectors shall not be installed within a 36 in. (910 mm) horizontal path from the supply registers of a forced air heating or cooling system and shall be installed outside of the direct airflow from those registers.~~

(7) Smoke alarms and smoke detectors shall not be installed within a 36 in. (910 mm) horizontal path from a door to a bathroom containing a shower or tub unless listed for installation in close proximity to such loactions. ~~the tip of the blade of a ceiling-suspended (paddle) fan.~~

(8) Smoke alarms and smoke detectors shall not be installed within a 36 in. (910 mm) horizontal path from the supply registers of a forced air heating or cooling system and shall be installed outside of the direct airflow from those registers. ~~Where stairs lead to other occupied levels, a smoke alarm or smoke detector shall be located so that smoke rising in the stairway cannot be prevented from reaching the smoke alarm or smoke detector by an intervening door or obstruction.~~

(9) Smoke alarms and smoke detectors shall not be installed within a 36 in. (910 mm) horizontal path from the tip of the blade of a ceiling-suspended (paddle) fan unless the room configuration restricts meeting this requirement. ~~For stairways leading up from a basement, smoke alarms or smoke detectors shall be located on the basement ceiling near the entry to the stairs.~~

(10) ~~Where stairs lead to other occupied levels, a smoke alarm or smoke detector shall be located so that smoke rising in the stairway cannot be prevented from reaching the smoke alarm or smoke detector by an intervening door or obstruction. For tray-shaped ceilings (coffered ceilings), smoke alarms and smoke detectors shall be installed on the highest portion of the ceiling or on the sloped portion of the ceiling within 12 in. (300 mm) vertically down from the highest point.~~

(11) ~~For stairways leading up from a basement, smoke alarms or smoke detectors shall be located on the basement ceiling near the entry to the stairs. Smoke alarms and detectors installed in rooms with joists or beams shall comply with the requirements of 17.7.3.2.4.~~

(12) ~~For tray-shaped ceilings (coffered ceilings), smoke alarms and smoke detectors shall be installed on the highest portion of the ceiling or on the sloped portion of the ceiling within 12 in. (300 mm) vertically down from the highest point. Heat alarms and detectors installed in rooms with joists or beams shall comply with the requirements of 17.6.3.~~

(13) ~~Smoke alarms and detectors installed in rooms with joists or beams shall comply with the requirements of 17.7.3.2.4 of NFPA 72.~~

(14) ~~Heat alarms and detectors installed in rooms with joists or beams shall comply with the requirements of 17.6.3 of NFPA 72.~~

**For additional requirements or clarification, see NFPA 72.*

Item 9-19

Chapter 9, Fire Protection And Life Safety Systems, Section 907.2.23 Energy Storage Systems

[The SFM proposes to repeal California amendments and replace with model code language.]

[F] 907.2.23 **Energy Storage Systems** ~~Energy Storage Systems~~. An automatic smoke detection system or radiant-energy detection system ~~or radiant-energy detection system~~ shall be installed in rooms, areas and walk-in units ~~and rooms, walk-in units and areas~~ containing stationary energy ~~energy~~ storage systems as required in Section 1206 of ~~this code~~.

Item 9-20

Chapter 9, Fire Protection And Life Safety Systems, Section 905.2.1 Audible Alarms

[The SFM proposes to renumber California amendments based on changes in the model code.]

907.5.2.1 Audible alarms. Audible alarm notification appliances shall be provided and emit a distinctive sound that is not to be used for any purpose other than that of a fire alarm. *In Group I-2 occupancies, audible appliances located in patient areas shall be only chimes or similar sounding appliances for alerting staff. See Section 907.6.6* 907.5.2.5.

Exceptions:

1. Audible alarm notification appliances are not required in *patient* areas of Group I-2, ~~Condition 2~~ occupancies that are in compliance with Section ~~907.2.6, Exception 2~~ 907.5.2.5.
2. A visible alarm notification appliance installed in a nurses' control station or other continuously attended staff location in a Group I-2, ~~Condition 2~~ care suite shall be an acceptable alternative to the installation of audible alarm notification appliances throughout a care suite ~~or unit~~ in Group I-2, Condition 2 occupancies that are in compliance with Section ~~907.2.6, Exception 2~~ 907.5.2.5.

Item 9-21

Chapter 9, Fire Protection And Life Safety Systems, Section 905.2.1.4 Audible alarm signal

[The SFM proposes to renumber California amendments based on changes in the model code.]

~~907.5.2.1.3~~ 907.5.2.1.4 Audible alarm signal. ...

Item 9-22

Chapter 9, Fire Protection And Life Safety Systems, Section 907.5.2.3 Visible Alarms

[The SFM proposes to modify and amend section 907.5.2.3.]

907.5.2.3 Visible alarms. Visible alarm notification appliances shall be provided in accordance with Sections 907.5.2.3.1 through 907.5.2.3.4.

Exceptions:

1. *In other than Group I-2 and I-2.1*, visible alarm notification appliances are not required in alterations, except where an existing fire alarm system is upgraded or replaced, or a new fire alarm system is installed.
2. Visible alarm notification appliances shall not be required in *enclosed exit stairways, enclosed exit ramps, exterior exit stairs, and exterior exit ramps*.
3. Visible alarm notification appliances shall not be required in elevator cars.
4. Visual alarm notification appliances are not required in critical care areas of Group I-2, ~~Condition 2~~ occupancies that are in compliance with Section ~~907.2.6, Exception 2~~ 907.5.2.5.
5. A visible *alarm notification appliance* installed in a nurses' control station or other continuously attended staff location in a Group I-2, ~~Condition 2~~ care suite shall be an acceptable alternative to the installation of visible alarm notification appliances throughout the care suite or unit in Group I-2, Condition 2 occupancies that are in compliance with Section ~~907.2.6, Exception 2~~ 907.5.2.5.

Item 9-23

Chapter 9, Fire Protection And Life Safety Systems, Section 907.6.4.4 Notification zoning Schools

[The SFM proposes to correct a reference number.]

907.6.4.4 Notification zoning. *Upon activation of initiating devices where occupant notification is required for evacuation, all notification zones shall operate simultaneously throughout the building.*

Exceptions:

1. *High-rise buildings as permitted in Section 907.2.4.3*12.

...

Item 9-24

Chapter 9, Fire Protection And Life Safety Systems, Section 907.6.6.3 Group E Schools

[The SFM proposes to renumber section 907.6.6.3 based on changes to the model code.]

907.6.6.3 907.6.6.4 Group E schools. ...

**SECTION 908
EMERGENCY ALARM SYSTEMS**

Item 9-25

Chapter 9, Fire Protection And Life Safety Systems, Section 908.4 Carbon dioxide Enrichment Systems

[The SFM proposes to renumber section 907.6.6.3 based on changes to the model code.]

908.3 908.4 Carbon dioxide enrichment systems. ...

**SECTION 911
EXPLOSION CONTROL**

Item 9-26

Chapter 9, Fire Protection And Life Safety Systems, Section 911.1 General

[The SFM proposes to repeal California amendment and replace with model code language.]

- 911.1 General. Explosion control shall be provided in the following locations:
1. Where a structure, room or space is occupied for purposes involving explosion hazards as identified in Table 911.1.
 2. Where quantities of hazardous materials specified in Table 911.1 exceed the maximum allowable quantities in Table 5003.1.1(1).

Such areas shall be provided with explosion (deflagration) venting, explosion (deflagration) prevention systems or barricades in accordance with this section and NFPA 68, ~~NFPA 68~~, NFPA 69, or NFPA 495 as applicable. Deflagration venting shall not be utilized as a means to protect buildings from detonation hazards.

Item 9-27

Chapter 9, Fire Protection And Life Safety Systems, Table 911.1 Explosion Control Requirements

[The SFM proposes to repeal California amendment and replace with model code language.]

TABLE 911.1
EXPLOSION CONTROL REQUIREMENTS ^f

| MATERIAL | CLASS | EXPLOSION CONTROL METHODS | |
|--|-------|--|---|
| | | Barricade construction | Explosion (deflagration) venting or explosion (deflagration) prevention systems |
| Hazard Category | | | |
| Special Uses | | | |
| Acetylene generator rooms | | | |
| <u>Energy storage systems</u> ^g Energy storage systems ^g | — | <u>Not required</u> Not required | <u>Required</u> Required |
| Grain processing | | | |

(Footnotes a-f remain unchanged)

...

g. Where explosion control is required in Section 1206.

~~g. Where explosion control is required in Section 1206.~~

Item 9-28

Chapter 9, Fire Protection And Life Safety Systems, Table 911.4 Deflagration Venting

[The SFM proposes to repeal California amendment and replace with model code language.]

911.4 Deflagration venting. Deflagration venting shall be of an approved type and installed in accordance with the provisions of this code and NFPA 68.

~~**911.4 Deflagration venting.** Deflagration venting shall be of an approved type and installed in accordance with the provisions of this code and NFPA 68.~~

SECTION 913 FIRE PUMPS

Item 9-29

Chapter 9, Fire Protection And Life Safety Systems, Section 913.1 General

[The SFM proposes to amend Section 913.1 to correlate the exception reference section to the applicable California Residential Code section number.]

913.1 General. Where provided, fire pumps for fire protection systems shall be installed in accordance with this section and NFPA 20.

Exception: Pumps for automatic sprinkler systems installed in accordance with Section 903.3.1.3 or Section P2904 R313 of the International California Residential Code.

Item 9-30

Chapter 9, Fire Protection And Life Safety Systems, Section 913.1 General

[The SFM proposes to repeal California amendments that reference Sections that are no longer applicable, relevant or exist.]

913.6 Fire pumps in high-rise buildings. *Engine-driven fire pumps and electric drive fire pumps supplied by generators shall both be provided with an on-premises fuel supply, sufficient for not less than 8-hour full-demand operation at 100 percent of the rated pump capacity in addition to all other required supply demands in accordance with Sections 9.6 and 11.4.2 of NFPA 20 and this section. (Also see Section 604.2.14.1.)*

**SECTION 914
FIRE PROTECTION BASED ON SPECIAL DETAILED
REQUIREMENTS OF USE AND OCCUPANCY**

Item 9-31

Chapter 9, Fire Protection And Life Safety Systems, Section 914.3.1.2 Water Supply to Required Fire Pumps

[The SFM proposes to amend Section 914.3.1.2 to correlate with amendments made to the California Building Code in the 2019 Intervening Code Cycle. This change was part of the Tall Wood work group. The California Amendment is to address the requirement for all High-rise buildings without regard to the construction type.]

914.3.1.2 Water supply to required fire pumps.

In all buildings *having an occupied floor that are is more than 420 120 feet (428 36576 m) above the lowest level of fire department vehicle access, in building height, and buildings of Type IVA and IVB construction that are more than 120 feet in building height*, required fire pumps shall be supplied by connections to not fewer than two water mains located in different streets. Separate supply piping shall be provided between each connection to the water main and the pumps. Each connection and the supply piping between the connection and the pumps shall be sized to supply the flow and pressure required for the pumps to operate.

Exception: Two connections to the same main shall be permitted provided that the main is valved such that an interruption can be isolated so that the water supply will continue without interruption through not fewer than one of the connections.

Item 9-32

Chapter 9, Fire Protection And Life Safety Systems, Section 914.7 Special Amusement Areas

[The SFM proposes to carry forward existing California amendments and repeal and replace with model code language.]

914.7 Special amusement ~~areas~~ ~~areas~~. Special amusement ~~areas~~ ~~areas~~ shall comply with Sections 914.7.1 through 914.7.3 and Section 411 of the California Building Code.

Item 9-33

Chapter 9, Fire Protection And Life Safety Systems, Section 914.7.1 Automatic Sprinkler System

[The SFM proposes to carry forward existing California amendments and repeal and replace with model code language.]

914.7.1 Automatic sprinkler system. Buildings containing special ~~Buildings containing special~~ amusement ~~areas~~ ~~areas~~ shall be equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1. Where the special amusement ~~area~~ ~~area~~ is temporary; *less than 180 days*; the sprinkler water supply shall be of an approved temporary; *less than 180 days*; means *determined by the authority having jurisdiction*.

Exception: Automatic sprinklers are not required where the total floor area of a temporary; *less than 180 days*; special amusement ~~area~~ ~~area~~ is less than 1,000 square feet (93 m²) and the exit access travel distance from any point in the special amusement area ~~in the special amusement area~~ to an exit is less than 50 feet (15 240 mm).

Item 9-34

Chapter 9, Fire Protection And Life Safety Systems, Section 914.7.2 Fire Alarm System

[The SFM proposes to carry forward existing California amendments and repeal and replace with model code language.]

914.7.2 *Fire alarm system*. Special amusement ~~areas~~ ~~areas~~ shall be equipped with an automatic smoke detection system in accordance with Section 907.2.12.

Item 9-35

Chapter 9, Fire Protection And Life Safety Systems, Section 916 Gas Detection Systems

[The SFM proposes to repeal California amendments and replace with model code language.]

SECTION 916
GAS DETECTION SYSTEMS
~~SECTION 916~~
~~GAS DETECTION SYSTEMS~~

916.1 Gas detection systems. Gas detection systems required by this code shall comply with Sections 916.2 through 916.11.

~~**916.1 Gas detection systems.** Gas detection systems required by this code shall comply with Sections 916.2 through 916.11.~~

916.2 Permits. Permits shall be required as set forth in Section 105.6.10.

~~**916.2 Permits.** Permits shall be required as set forth in Section 105.7.11.~~

916.2.1 Construction documents. Documentation of the gas detection system design and equipment to be used that demonstrates compliance with the requirements of this code shall be provided with the application for permit.

~~**916.2.1 Construction documents.** Documentation of the gas detection system design and equipment to be used that demonstrates compliance with the requirements of this code shall be provided with the application for permit.~~

916.3 Equipment. Gas detection system equipment shall be designed for use with the gases being detected and shall be installed in accordance with manufacturer's instructions.

~~**916.3 Equipment.** Gas detection system equipment shall be designed for use with the gases being detected and shall be installed in accordance with manufacturer's instructions.~~

916.4 Power connections. Gas detection systems shall be permanently connected to the building electrical power supply or shall be permitted to be cord connected to an unswitched receptacle using an approved restraining means that secures the plug to the receptacle.

~~**916.4 Power connections.** Gas detection systems shall be permanently connected to the building electrical power supply or shall be permitted to be cord connected to an~~

~~unswitched receptacle using an approved restraining means that secures the plug to the receptacle.~~

916.5 Emergency and standby power. Standby or emergency power shall be provided or the gas detection system shall initiate a trouble signal at an approved location if the power supply is interrupted.

~~**916.5 Emergency and standby power.** Standby or emergency power shall be provided or the gas detection system shall initiate a trouble signal at an approved location if the power supply is interrupted.~~

916.6 Sensor locations. Sensors shall be installed in approved locations where leaking gases are expected to accumulate.

~~**916.6 Sensor locations.** Sensors shall be installed in approved locations where leaking gases are expected to accumulate.~~

916.7 Gas sampling. Gas sampling shall be performed continuously. Sample analysis shall be processed immediately after sampling, except as follows:

1. For HPM gases, sample analysis shall be performed at intervals not exceeding 30 minutes.
2. For toxic gases that are not HPM, sample analysis shall be performed at intervals not exceeding 5 minutes, in accordance with Section 6004.2.2.7.
3. Where a less frequent or delayed sampling interval is approved.

~~**916.7 Gas sampling.** Gas sampling shall be performed continuously. Sample analysis shall be processed immediately after sampling, except as follows:~~

- ~~1. For HPM gases, sample analysis shall be performed at intervals not exceeding 30 minutes.~~
- ~~2. For toxic gases that are not HPM, sample analysis shall be performed at intervals not exceeding 5 minutes, in accordance with Section 6004.2.2.7.~~
- ~~3. Where a less frequent or delayed sampling interval is approved.~~

916.8 System activation. A gas detection alarm shall be initiated where any sensor detects a concentration of gas exceeding the following thresholds:

1. For flammable gases, a gas concentration exceeding 25 percent of the lower flammability limit (LFL).
2. For nonflammable gases, a gas concentration exceeding one-half of the IDLH, unless a different threshold is specified by the section of this code requiring a gas detection system.

Upon activation of a gas detection alarm, alarm signals or other required responses shall be as specified by the section of this code requiring a gas detection system. Audible and visible alarm signals associated with a gas detection alarm shall be distinct from fire alarm and carbon monoxide alarm signals.

~~916.8 System activation.~~ ~~A gas detection alarm shall be initiated where any sensor detects a concentration of gas exceeding the following thresholds:~~

- ~~1. For flammable gases, a gas concentration exceeding 25 percent of the lower flammability limit (LFL).~~
- ~~2. For nonflammable gases, a gas concentration exceeding one-half of the IDLH, unless a different threshold is specified by the section of this code requiring a gas detection system.~~

~~Upon activation of a gas detection alarm, alarm signals or other required responses shall be as specified by the section of this code requiring a gas detection system. Audible and visible alarm signals associated with a gas detection alarm shall be distinct from fire alarm and carbon monoxide alarm signals.~~

916.9 Signage. Signs shall be provided adjacent to gas detection system alarm signaling devices that advise occupants of the nature of the signals and actions to take in response to the signal.

~~**916.9 Signage.** Signs shall be provided adjacent to gas detection system alarm signaling devices that advise occupants of the nature of the signals and actions to take in response to the signal.~~

916.10 Fire alarm system connections. Gas sensors and gas detection systems shall not be connected to fire alarm systems unless approved and connected in accordance with the fire alarm equipment manufacturer's instructions.

~~**916.10 Fire alarm system connections.** Gas sensors and gas detection systems shall not be connected to fire alarm systems unless approved and connected in accordance with the fire alarm equipment manufacturer's instructions.~~

916.11 Inspection, testing and sensor calibration. Inspection and testing of gas detection systems shall be conducted not less than annually. Sensor calibration shall be confirmed at the time of sensor installation and calibration shall be performed at the frequency specified by the sensor manufacturer.

~~**916.11 Inspection, testing and sensor calibration.** Inspection and testing of gas detection systems shall be conducted not less than annually. Sensor calibration shall be confirmed at the time of sensor installation and calibration shall be performed at the frequency specified by the sensor manufacturer.~~

Notation:

Authority: Health and Safety Code Sections 1250, 1569.72, 1569.78, 1568.02, 1502, 1597.44, 1597.45, 1597.46, 1597.54, 1597.65, 13108, 13108.5, 13114, 13143, 13143.2, 13143.6, 13146, 13210, 13211, 17921, 18949.2, 25500 through 25545, Government Code Section 51189, Public Education Code 17074.50

Reference(s): Health and Safety Code Sections 13143, 13211, 18949.2, 25500 through 25545, Government Code Sections 51176, 51177, 51178 and 51179, Public Resources Code Sections 4201 through 4204

**CHAPTER 10
MEANS OF EGRESS**

Item 10-1

Chapter 10, Means Of Egress

[The SFM proposes to adopt Chapter 10 and carry forward existing amendments. Modifications are shown below.]

Item 10-2

Chapter 10, Means Of Egress

[The SFM proposes an editorial change to get the term townhouse out of parentheses and eliminate the preceding text that describes what a townhouse is.]

1001.1 General. Buildings or portions thereof shall be provided with a means of egress system as required by this chapter. The provisions of this chapter shall control the design, construction and arrangement of means of egress components required to provide an approved means of egress from structures and portions thereof. Sections 1003 through 1031 shall apply to new construction. Section 1032 shall apply to existing buildings.

Exception: Detached one- and two-family dwellings and ~~multiple single-family dwellings (townhouses)~~ not more than three stories above grade plane in height with a separate means of egress and their accessory structures shall comply with the International California Residential Code.

**SECTION 1003
GENERAL MEANS OF EGRESS**

Item 10-3

Chapter 10, Means Of Egress

[The SFM proposes repeal California amendment to exception 1 and adopt model code language.]

[BE] 1003.5 Elevation change. Where changes in elevation of less than 12 inches (305 mm) exist in the means of egress, sloped surfaces shall be used. Where the slope is greater than one unit vertical in 20 units horizontal (5-percent slope), ramps complying with Section 1012 shall be used. Where the difference in elevation is 6 inches (152 mm) or less, the ramp shall be equipped with either handrails or floor finish materials that contrast with adjacent floor finish materials.

Exceptions:

- ~~1. A single step with a maximum riser height of 7 inches (178 mm) is permitted for buildings with occupancies in Groups F, H, R-2, R-3, S and U at exterior doors not required to be accessible by Chapter 11A or 11B of the California Building Code. Steps at exterior doors complying with Section 1010.1.4.~~

...

**SECTION 1005
MEANS OF EGRESS SIZING**

Item 10-4

Chapter 10, Means Of Egress

[The SFM proposes delete model code language.]

[BE] 1005.7.2 Other projections. Handrail projections shall be in accordance with the provisions of Section 1014.8. Other nonstructural projections such as trim and similar decorative features shall be permitted to project into the required width not more than 1 1/2 inches (38 mm) on each side.

~~**Exception:** Projections are permitted in corridors within Group I-2 Condition 1 in accordance with Section 407.4.3 of the International Building Code.~~

**SECTION 1006
NUMBERS OF EXITS AND
EXIT ACCESS DOORWAYS**

Item 10-5

Chapter 10, Means Of Egress

[The SFM proposes to renumber exception 3, based on changes made to the model code.]

[BE] 1006.2.1 Egress based on occupant load and common path of egress travel distance. ...

Exceptions:

1. ...

34. In detention and correctional facilities and holding cells, such as are found in courthouse buildings, when the occupant load is more than 20 see Section 408.3.11 of the California Building Code.

Item 10-6

Chapter 10, Means Of Egress

[The SFM proposes to correlate and simplify the egress requirements for refrigerated rooms and associated machinery rooms.]

1006.2.2.2 Refrigeration machinery rooms. Machinery rooms larger than 1,000 square feet (93 m) shall have not less than two exits or exit access doorways. Where two exit access doorways are required, one such doorway is permitted to be served by a fixed ladder or an alternating tread device. Exit access doorways shall be separated by a horizontal distance equal to one-half the maximum horizontal dimension of the room.

All portions of machinery rooms shall be within 150 feet (45 720 mm) of an exit or exit access doorway. ~~An increase in exit access travel distance is permitted in accordance with Section 1017.1.~~

Exit and exit access doorways shall swing in the direction of egress travel and shall be equipped with panic hardware, regardless of the occupant load served. Exit and exit access doorways shall be tight fitting and self-closing.

1006.2.2.3 Refrigerated rooms or spaces. Rooms or spaces having a floor area larger than 1,000 square feet (93 m), containing a refrigerant evaporator and maintained at a temperature below 68°F (20°C), shall have access to not less than two exits or exit access doorways.

Exit access travel distance shall be determined as specified in Section 1017.1, ~~but all~~ All portions of a refrigerated room or space shall be within 150 feet (45 720 mm) of an exit or exit access doorway leading to a nonrefrigerated area where such rooms are not protected by an approved automatic sprinkler system. ~~Egress is allowed through adjoining refrigerated rooms or spaces.~~

Exception: Where using refrigerants in quantities limited to the amounts based on the volume set forth in the ~~International~~ California Mechanical Code. Egress is allowed through adjoining refrigerated rooms or spaces.

Item 10-7

Chapter 10, Means Of Egress

[The SFM proposes to add Section 1006.2.2.8 which maintains the clear egress requirements for Group I-4 occupancies. This corresponds with Table 1006.2.1 for all I-4 occupancies.]

1006.2.2.8 Group I-4 means of egress. *Group I-4 facilities, rooms or spaces where care is provided for more than 10 children that 36 months of age or less shall have access to not less than two exits or exit access doorways.*

SECTION 1009 ACCESSIBLE MEANS OF EGRESS

Item 10-8

Chapter 10, Means Of Egress

[The SFM proposes to amend California amendment to reflect changes made in the model code based on revisions made in the 2017 ICC A117.1 document.]

[BE] 1009.6.3 Size. Each area of refuge shall be sized to accommodate *two* wheelchair spaces *that are not less than* 30 inches by 52 inches (762 mm by 1320 mm). *The total number of such 30-inch by 48*~~52~~*-inch (762 mm by 1219* 1320 *mm) spaces per story shall be not less than one for every 200 persons of calculated occupant load served by the area of refuge.* Such wheelchair spaces shall not reduce the means of egress minimum width or required capacity. Access to any of the required wheelchair spaces in an area of refuge shall not be obstructed by more than one adjoining wheelchair space.

Exception: *The enforcing agency may reduce the size of each required area of refuge to accommodate one wheelchair space that is not less than 30 inches by 48* 52 *inches (762 mm by 1219* 1320 *mm) on floors where the occupant load is less than 200.*

Item 10-9

Chapter 10, Means Of Egress

[The SFM proposes to amend in coordination with OSHPD.]

1009.12 Alarms/emergency warning systems/accessibility two-way communication systems. ~~*If Required emergency warning systems are required, they shall activate a means of warning the hearing impaired. Emergency warning systems provided as part of the fire-alarm system and two-way communication systems required by Chapter 10 shall be designed and installed in accordance with NFPA 72 as amended in Chapter 80.*~~

SECTION 1010 DOORS, GATES AND TURNSTILES

Item 10-10

Chapter 10, Means Of Egress

[The SFM proposes to amend in coordination with OSHPD.]

[BE] 1010.1.1 Size of doors. The required capacity of each door opening shall be sufficient for the occupant load thereof and shall provide a minimum clear opening width of 32 inches (813 mm). The clear opening width of doorways with swinging doors shall be measured between the face of the door and the stop, with the door open 90 degrees (1.57 rad). Where this section requires a minimum clear opening width of 32 inches (813 mm) and a door opening includes two door leaves without a mullion, one leaf shall provide a minimum clear opening width of 32 inches (813 mm). In Groups I-2 or I-2.1, doors serving as means of egress doors where used for the movement of beds *and stretcher patients* shall provide a minimum clear opening width of ~~41¹/₂ inches (1154 mm)~~ 44 inches (1118 mm). Where this section requires a minimum clear opening width of 44 inches (1118 mm) and a door opening includes two door leaves without a mullion, one leaf shall provide a minimum clear opening width of 44 inches (1118 mm). The maximum width of a swinging door leaf shall be 48 inches (1219 mm) nominal. The minimum clear opening height of doors shall be not less than 80 inches (2032 mm).

Exceptions:

(Adopt model code for all exceptions)

...

Item 10-11

Chapter 10, Means Of Egress

[The SFM proposes to amend in coordination with OSHPD.]

[BE] 1010.1.4 Floor elevation. There shall be a floor or landing on each side of a door. Such floor or landing shall be at the same elevation on each side of the door. Landings shall be level except for exterior landings, which are permitted to have a slope not to exceed 0.25 unit vertical in 12 units horizontal (2-percent slope).

Exceptions:

1. At doors serving individual dwelling units or sleeping units in Groups R-2 and R-3, a door is permitted to open at the top step of an interior flight of stairs, provided that the door does not swing over the top step.
2. At exterior doors serving Groups F, H, R-2 and S and where such doors are not part of an accessible route or not required to be accessible by Chapter 11A or 11B of the California Building Code, the landing at an exterior door shall be not more than 7 inches (178 mm) below the landing on the egress side of the door, provided that the door, other than an exterior storm or screen door, does not swing over the landing.

...

Item 10-12

Chapter 10, Means Of Egress

[The SFM proposes to amend in coordination with OSHPD.]

[BE] 1010.2.5 Bolt locks. Manually operated flush bolts or surface bolts are not permitted.

Exceptions:

...

5. ~~Where a~~ Manually operated edge and surface mounted bolts shall be permitted on the inactive leaf of pairs of doors that serve serves patient care rooms in Group I-2 occupancies; provided that the bolts are self-latching and self-latching edge or surface-mounted bolts are permitted on the inactive leaf provided that the inactive leaf is not needed to meet the minimum clear opening width required by Section 1010.1.1 of the California Building Code. ~~egress capacity requirements and t~~ The inactive leaf shall not contain doorknobs, *panic* bars or similar operating hardware.

Item 10-13

Chapter 10, Means Of Egress

[The SFM proposes to renumber based on model code language.]

~~1010.1.4.5.1~~ **1010.2.8.1 Special provisions school classrooms.** *School classrooms constructed after January 1, 1990, not equipped with automatic sprinkler systems, which have metal grilles or bars on all their windows and do not have at least two exit doors within 3 feet (914 mm) of each end of the classroom opening to the exterior of the building or to a common hallway used for evacuation purposes, shall have an inside release for the grilles or bars on at least one window farthest from the exit doors. The window or windows with the inside release shall be clearly marked as emergency exits.*

Item 10-14

Chapter 10, Means Of Egress

[The SFM proposes to carry forward existing amendments to Section 1010.1.14 in coordination with OSHPD.]

1010.1.14 Controlled egress doors in Group I-2. ...

Item 10-15

Chapter 10, Means Of Egress

[The SFM proposes to carry forward exiting amendments and modify as shown below.]

[BE] 1010.2.13 Delayed egress. Delayed egress locking systems, shall be permitted to be installed on doors serving the following occupancies in buildings that are equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 *and*

an approved automatic smoke detection system installed in accordance with Section 907:

1. Group B, F, I, M, R, S and U occupancies.
2. Group E classrooms with an occupant load of less than 50.

~~2. Group E classrooms with an occupant load of less than 50.~~

3. In courtrooms in Group A-3 and B occupancies, delayed egress locking systems shall be permitted to be installed on exit or exit access doors, other than the main exit or exit access door, in buildings that are equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 and an approved automatic smoke detection system installed in accordance with Section 907.

~~Exception: Delayed egress locking systems shall be permitted to be installed on exit or exit access doors, other than the main exit or exit access door, serving a Group A courtroom in buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 and an approved automatic smoke detection system installed in accordance with Section 907.~~

Item 10-16

Chapter 10, Means Of Egress

[The SFM proposes to amend in coordination with OSHPD.]

[BE] 1013.6.3 Power source. Exit signs shall be illuminated at all times. To ensure continued illumination for a duration of not less than 90 minutes in case of primary power loss, the sign illumination means shall be connected to an emergency power system provided from storage batteries, unit equipment or an on-site generator. The installation of the emergency power system shall be in accordance with Chapter 27. Group I-2, ~~Condition 2~~ exit sign illumination shall not be provided by unit equipment batteries only.

Item 10-17

Chapter 10, Means Of Egress

[The SFM proposes to carry forward existing amendments incorporated within new model code language.]

1020.6 Air movement in corridors. Corridors shall not serve as supply, return, exhaust, relief or ventilation air ducts.

Exceptions:

1. (exceptions 1 through 3 remain unchanged)

- ...
4. Transfer air movement required to maintain the pressurization difference within health care facilities *and Group L occupancies*, in accordance with ASHRAE 170.

Item 10-18

Chapter 10, Means Of Egress

[The SFM proposes to amend.]

4016.2.2 1022.3 Basement exits in Group I-2 occupancies. *For additional requirements for occupancies in Group I-2 or I-2.1, see Section 407.4.1.2 of the California Building Code.*

Item 10-19

Chapter 10, Means Of Egress

[The SFM proposes to repeal California amendment and replace with model code language.]

[BE] 1024.6 Penetrations. Penetrations into or through an exit passageway are prohibited except for the following:

1. Equipment and ductwork necessary for independent ventilation or ~~ventilation or~~ pressurization.

Item 10-20

Chapter 10, Means Of Egress

[The SFM proposes to renumber based on model code changes.]

1029.6.4 1030.6.3.2 Public address system. *See Section 907.2.1.3 907.2.1.1.*

Item 10-21

Chapter 10, Means Of Egress

[The SFM proposes to add maintenance and examination enforceable requirements that all in one place. These requirements are also in Chapter 11 for Existing Buildings.]

1032.2.1.2 Maintenance. *Fire escape stairways and balconies shall be kept clear and unobstructed at all times and shall be maintained in good working order.*

1032.2.1.3 Examination. *Fire escape stairways and balconies shall be examined for structural adequacy and safety by a registered design professional or other person acceptable to the fire code official every 5 years. The examination shall determine*

whether the fire escape stairways and balconies can support the dead load plus a live load of not less than 100 pounds per square foot (4.78 kN/m). An inspection report shall be submitted to the fire code official after such examination.

Item 10-22

Chapter 10, Means Of Egress

[The SFM proposes to.]

Notation:

Authority: Health and Safety Code Sections 1250, 1569.72, 1569.78, 1568.02, 1502, 1597.44, 1597.45, 1597.46, 1597.54, 1597.65, 13108, 13108.5, 13114, 13143, 13143.2, 13143.6, 13146, 13210, 13211, 17921, 18949.2, 25500 through 25545, Government Code Section 51189, Public Education Code 17074.50

Reference(s): Health and Safety Code Sections 13143, 13211, 18949.2, 25500 through 25545, Government Code Sections 51176, 51177, 51178 and 51179, Public Resources Code Sections 4201 through 4204

CHAPTER 11 CONSTRUCTION REQUIREMENTS FOR EXISTING BUILDINGS

Item 11-1

Chapter 11, Construction Requirements For Existing Buildings

[The SFM proposes to adopt Chapter 11 Sections 1103.7, 1103.7.3, 1103.7.3.1, 1103.7.8-1103.7.8.2, 1103.7.9-1103.7.9.10, 1103.8-1103.8.5.3, carry forward existing amendments and make the following modifications as listed below.]

Item 11-2

Chapter 11, Construction Requirements For Existing Buildings, Section 1113.1.1 Application

[The SFM proposes to make an editorial correction.]

1113.1.1 Application. *In accordance with Health and Safety Code Section ~~111143.2~~ 13143.2, the provisions of Sections 1113.2 through 1113.12 shall only apply to multiple-story structures existing on January 1, 1975, let for human habitation, including, and limited to, apartment houses, hotels, and motels wherein rooms used for sleeping are let above the ground floor.*

Notation:

Authority: Health and Safety Code Sections 1250, 1569.72, 1569.78, 1568.02, 1502, 1597.44, 1597.45, 1597.46, 1597.54, 1597.65, 13108, 13108.5, 13114, 13143, 13143.2,

13143.6, 13146, 13210, 13211, 17921, 18949.2, 25500 through 25545, Government Code Section 51189, Public Education Code 17074.50

Reference(s): Health and Safety Code Sections 13143, 13211, 18949.2, 25500 through 25545, Government Code Sections 51176, 51177, 51178 and 51179, Public Resources Code Sections 4201 through 4204

CHAPTER 12 ENERGY SYSTEMS

Item 12-1

Chapter 12, Energy Systems

[The SFM proposes to adopt Chapter 12, carry forward existing amendments and propose the following modifications listed below.]

SECTION 1201 GENERAL

Item 12-2

Chapter 12, Energy Systems

[The SFM proposes to repeal California amendments and replace with model code language.]

1201.1 Scope. The provisions of this chapter shall apply to the installation, operation, maintenance, ~~repair, retrofitting, testing, commissioning and decommissioning~~ repair, retrofitting, testing, commissioning and decommissioning of energy systems used for generating or storing energy. It shall not apply to equipment associated with the generation, control, transformation, transmission, or distribution of energy installations that is under the exclusive control of an electric utility or lawfully designated agency.

Item 12-3

Chapter 12, Energy Systems

[The SFM proposes to repeal California amendments and replace with model code language.]

1201.3 Mixed system installation. Where approved, the aggregate ~~nameplate~~ nameplate kWh energy ~~of all energy storage systems~~ of all energy storage systems in a fire area shall not exceed the maximum quantity specified for any of the energy systems in this chapter. Where required by the fire code official, a hazard mitigation analysis shall be provided and approved in accordance with Section 104.7.2 to evaluate any potential adverse interaction between the various energy systems and technologies.

SECTION 1202

DEFINITIONS

Item 12-4

Chapter 12, Energy Systems

[The SFM proposes to repeal California amendments and replace with model code language.]

CAPACITOR ENERGY STORAGE SYSTEM.

~~ENERGY STORAGE~~ STORAGE MANAGEMENT SYSTEMS.

~~ENERGY STORAGE SYSTEM.~~ ENERGY STORAGE SYSTEM.

~~ENERGY STORAGE SYSTEM, ELECTROCHEMICAL.~~ ENERGY STORAGE SYSTEM, ELECTROCHEMICAL.

~~ENERGY STORAGE SYSTEM, MOBILE.~~ ENERGY STORAGE SYSTEM, MOBILE.

~~ENERGY STORAGE SYSTEM, WALK-IN UNIT.~~ ENERGY STORAGE SYSTEM, WALK-IN UNIT.

~~ENERGY STORAGE SYSTEM CABINET.~~ ENERGY STORAGE SYSTEM CABINET.

~~ENERGY STORAGE SYSTEM COMMISSIONING.~~ ENERGY STORAGE SYSTEM COMMISSIONING.

~~ENERGY STORAGE SYSTEM DECOMMISSIONING.~~ ENERGY STORAGE SYSTEM DECOMMISSIONING.

SECTION 1203 EMERGENCY AND STANDBY POWER SYSTEMS

Item 12-5

Chapter 12, Energy Systems

[The SFM proposes to repeal California amendments and replace with model code language.]

1203.2.6 Gas detection systems. Emergency power shall be provided for gas detection systems where required by Sections 1203.2.9 and 1203.2.16. Standby power shall be provided for gas detection systems where required by Sections 916.5 ~~and 1206.6.1.2.4~~ and 1206.6.1.2.4.

Item 12-6

Chapter 12, Energy Systems

[The SFM proposes to repeal California amendments and replace with model code language.]

1203.2.19 Exhaust ventilation. Standby power shall be provided for mechanical exhaust ventilation systems as required in Section 1206.6.1.2.1. The system shall be capable of powering the required load for a duration of not less than 2 hours.

Item 12-7

Chapter 12, Energy Systems

[The SFM proposes to renumber section based on changes to model code.]

~~1204.2.3~~ 1205.2.4 **Locations of DC conductors. ...**

Item 12-8

Chapter 12, Energy Systems

[The SFM proposes to renumber section based on changes to model code and add additional description to the section title.]

~~1204.3.4~~ 1205.3.3.4 **Locations of DC conductors in occupancies other than R-3. ...**

Item 12-9

Chapter 12, Energy Systems

[The SFM proposes to repeal California amendments and replace with model code language.]

1206.1 General. Stationary fuel cell power systems in new and existing occupancies shall comply with this section.

~~Exception: The temporary use of a fuel cell powered electric vehicle to power a Group R-3 or R-4 building while parked shall comply with Section 1205.14.~~

Exception: The temporary use of a fuel cell powered electric vehicle to power a Group R-3 or R-4 building while parked shall comply with Section 1205.14.

Item 12-10

Chapter 12, Energy Systems

[The SFM proposes to repeal California amendments and replace with model code language.]

1206.5 Residential use. Stationary fuel cell power systems shall not be installed in Group R-3 and R-4 buildings, or dwelling units associated with Group R-2 buildings unless they are specifically listed for residential use.

~~Exception: The temporary use of a fuel cell powered electric vehicle to power a Group R-3 or R-4 building while parked shall comply with Section 1205.14.~~

Exception: The temporary use of a fuel cell powered electric vehicle to power a Group R-3 or R-4 building while parked shall comply with Section 1205.14.

Item 12-11

Chapter 12, Energy Systems

[The SFM proposes to repeal California amendments and replace with model code language.]

~~1205.14 Group R-3 and R-4 Fuel Cell Vehicle ESS Use. The temporary use of the dwelling unit owner or occupant's fuel cell powered electric vehicle to power a Group R-3 or R-4 dwelling while parked in an attached or detached garage or outside shall comply with the vehicle manufacturer's instructions and NFPA 70.~~

1205.14 Group R-3 and R-4 fuel cell vehicle energy storage system use. The temporary use of the dwelling unit owner or occupant's fuel cell powered electric vehicle to power a Group R-3 or R-4 dwelling while parked in an attached or detached garage or outside shall comply with the vehicle manufacturer's instructions and California Electrical Code.

Item 12-12

Chapter 12, Energy Systems

[The SFM proposes to repeal California amendments and replace with model code language.]

SECTION 1207 ELECTRICAL ENERGY STORAGE SYSTEMS ~~(ESS)~~ (ESS)

1207.1 General. The provisions in this section are applicable to ~~stationary and mobile~~ stationary and mobile electrical energy storage systems ~~(ESS)~~ (ESS).

~~Exception: ESS in Group R-3 and R-4 occupancies shall comply with Section 1206.11.~~

Exception: ESS in Group R-3 and R-4 occupancies shall comply with Section 1207.11.

Item 12-13

Chapter 12, Energy Systems

[The SFM proposes to repeal California amendments and replace with model code language.]

***TABLE 1206.1
ENERGY STORAGE SYSTEM (ESS) THRESHOLD QUANTITIES***

| <i>TECHNOLOGY</i> | <i>ENERGY CAPACITY^a</i> |
|---|--|
| <i>Lead-acid batteries, all types</i> | <i>70 KWh (252 Megajoules)^e</i> |
| <i>Nickel-cadmium batteries (Ni-Cd)</i> | <i>70 KWh (252 Megajoules)</i> |
| <i>Nickel-metal hydride (Ni-MH)</i> | <i>70 KWh (252 Megajoules)</i> |
| <i>Lithium-ion batteries</i> | <i>20 KWh (72 Megajoules)</i> |
| <i>Flow batteries^b</i> | <i>20 KWh (72 Megajoules)</i> |
| <i>Other battery technologies</i> | <i>10 KWh (36 Megajoules)</i> |
| <i>Capacitor ESS</i> | <i>3 KWh (10.8 Mega joules)</i> |
| <i>Other electrochemical ESS technologies</i> | <i>3 KWh (10.8 Mega joules)</i> |

a. Energy capacity is the total energy capable of being stored (nameplate rating), not the usable energy rating. For units rated in Amp-Hours, KWh shall equal rated voltage multiplied by the amp-hour rating divided by 1000.

b. Shall include vanadium, zinc-bromine, polysulfide-bromide, and other flowing electrolyte type technologies.

c. 50 gallons of lead-acid battery electrolyte shall be considered equivalent to 70 KWh.

**TABLE 1207.1
ENERGY STORAGE SYSTEM (ESS) THRESHOLD QUANTITIES**

| <u>TECHNOLOGY</u> | <u>ENERGY CAPACITY^a</u> |
|---|--|
| <u>Capacitor ESS</u> | <u>3 KWh (10.8 Mega joules)</u> |
| <u>Flow batteries^b</u> | <u>20 KWh (72 Megajoules)</u> |
| <u>Lead-acid batteries, all types</u> | <u>70 KWh (252 Megajoules)^c</u> |
| <u>Lithium-ion batteries</u> | <u>20 KWh (72 Megajoules)</u> |
| <u>Nickel-metal hydride (Ni-MH)</u> | <u>70 KWh (252 Megajoules)</u> |
| <u>Nickel-cadmium batteries (Ni-Cd)</u> | <u>70 KWh (252 Megajoules)</u> |
| <u>Other battery technologies</u> | <u>10 KWh (36 Megajoules)</u> |
| <u>Other electrochemical ESS technologies</u> | <u>3 KWh (10.8 Mega joules)</u> |

a. Energy capacity is the total energy capable of being stored (nameplate rating), not

the usable energy rating. For units rated in amp-hours, kWh shall equal rated voltage times ~~multiplied by the amp-hour rating~~ divided by 1000.

b. Shall include vanadium, zinc-bromine, polysulfide-bromide, and other flowing electrolyte type technologies.

c. 50 gallons of lead-acid battery electrolyte shall be considered equivalent to 70 kWh.

Item 12-14

Chapter 12, Energy Systems

[The SFM proposes to repeal California amendments and replace with model code language.]

~~1206.1.1 Scope. ESS having capacities exceeding the values shown in Table 1206.1 shall comply with this section.~~

1207.1.1 Scope. ESS having capacities exceeding the values shown in Table 1207.1 shall comply with this section.

Item 12-15

Chapter 12, Energy Systems

[The SFM proposes to repeal California amendments and replace with model code language.]

~~1206.1.2 Permits. Permits shall be obtained for ESS as follows:~~

~~1. Construction permits shall be obtained for stationary ESS installations and for mobile ESS charging and storage installations covered by 1206.10.1. Permits shall be obtained in accordance with Sections 105.7.2.~~

~~2. Operational permits shall be obtained for stationary ESS installations and for mobile ESS deployment operations covered by Section 1206.10.3. Permits shall be obtained in accordance with Sections 105.6.52.~~

1207.1.2 Permits. Permits shall be obtained for ESS as follows:

1. Construction permits shall be obtained for stationary ESS installations and for mobile ESS charging and storage installations covered by Section 1207.10.1. Permits shall be obtained in accordance with Section 105.6.5.

2. Operational permits shall be obtained for stationary ESS installations and for mobile ESS deployment operations covered by Section 1207.10.3. Permits shall be obtained in accordance with Section 105.5.14.

Item 12-16

Chapter 12, Energy Systems

[The SFM proposes to repeal California amendments and replace with model code language.]

~~1206.1.2.1 Communication utilities. Operational permits shall not be required for lead-acid and nickel-cadmium battery systems at facilities under the exclusive control of communications utilities that comply with NFPA 76 and operate at less than 50 VAC and 60 VDC.~~

1207.1.2.1 Communication utilities. Operational permits shall not be required for lead-acid and nickel-cadmium battery systems at facilities under the exclusive control of communications utilities that comply with NFPA 76 and operate at less than 50 voltage alternating current (VAC) and 60 voltage direct current (VDC).

Item 12-17

Chapter 12, Energy Systems

[The SFM proposes to repeal California amendments and replace with model code language.]

~~1206.1.3 Construction documents. The following information shall be provided with the permit application:~~

- ~~1. Location and layout diagram of the room or area in which the ESS is to be installed.~~
- ~~2. Details on the hourly fire-resistance ratings of assemblies enclosing the ESS.~~
- ~~3. The quantities and types of ESS to be installed.~~
- ~~4. Manufacturer's specifications, ratings and listings of each ESS.~~
- ~~5. Description of energy (battery) management systems and their operation.~~
- ~~6. Location and content of required signage.~~
- ~~7. Details on fire suppression, smoke or fire detection, thermal management, ventilation, exhaust and deflagration venting systems, if provided.~~
- ~~8. Support arrangement associated with the installation, including any required seismic restraint.~~
- ~~9. A commissioning plan complying with 1206.2.1.~~

~~10. A decommissioning plan complying with 1206.2.3.~~

1207.1.3 Construction documents. The following information shall be provided with the permit application:

1. Location and layout diagram of the room or area in which the ESS is to be installed.
2. Details on the hourly fire-resistance ratings of assemblies enclosing the ESS.
3. The quantities and types of ESS to be installed.
4. Manufacturer's specifications, ratings and listings of each ESS.
5. Description of energy (battery) management systems and their operation.
6. Location and content of required signage.
7. Details on fire suppression, smoke or fire detection, thermal management, ventilation, exhaust and deflagration venting systems, if provided.
8. Support arrangement associated with the installation, including any required seismic restraint.
9. A commissioning plan complying with Section 1207.2.1.
10. A decommissioning plan complying with Section 1207.2.3.

Item 12-18

Chapter 12, Energy Systems

[The SFM proposes to repeal California amendments and replace with model code language.]

~~1206.1.4 Hazard mitigation analysis. A failure modes and effects analysis (FMEA) or other approved hazard mitigation analysis shall be provided in accordance with Section 104.7.2 under any of the following conditions:~~

- ~~1. Where ESS technologies not specifically identified in Table 1206.1 are provided.~~
- ~~2. More than one ESS technology is provided in a room or enclosed area where there is a potential for adverse interaction between technologies.~~
- ~~3. Where allowed as a basis for increasing maximum allowable quantities. See Section 1206.5.2.~~

1207.1.4 Hazard mitigation analysis. A failure modes and effects analysis (FMEA) or other approved hazard mitigation analysis shall be provided in accordance with Section 104.8.2 under any of the following conditions:

1. Where ESS technologies not specifically identified in Table 1207.1 are provided.
2. More than one ESS technology is provided in a room or enclosed area where there is a potential for adverse interaction between technologies.
3. Where allowed as a basis for increasing maximum allowable quantities. See Section 1207.5.2.

Item 12-19

Chapter 12, Energy Systems

[The SFM proposes to repeal California amendments and replace with model code language.]

~~1206.1.4.1 Fault condition. The hazard mitigation analysis shall evaluate the consequences of the following failure modes. Only single failure modes shall be considered.~~

- ~~1. A thermal runaway condition in a single ESS rack, module or unit.~~
- ~~2. Failure of any battery (energy) management system.~~
- ~~3. Failure of any required ventilation or exhaust system.~~
- ~~4. Voltage surges on the primary electric supply.~~
- ~~5. Short circuits on the load side of the ESS.~~
- ~~6. Failure of the smoke detection, fire detection, fire suppression, or gas detection system.~~
- ~~7. Required spill neutralization not being provided or failure of a required secondary containment system.~~

1207.1.4.1 Fault condition. The hazard mitigation analysis shall evaluate the consequences of the following failure modes. Only single failure modes shall be considered.

1. A thermal runaway condition in a single ESS rack, module or unit.
2. Failure of any battery (energy) management system.
3. Failure of any required ventilation or exhaust system.

4. Voltage surges on the primary electric supply.
5. Short circuits on the load side of the ESS.
6. Failure of the smoke detection, fire detection, fire suppression or gas detection system.
7. Required spill neutralization not being provided or failure of a required secondary containment system.

Item 12-20

Chapter 12, Energy Systems

[The SFM proposes to repeal California amendments and replace with model code language.]

~~1206.1.4.2 Analysis approval. The fire code official is authorized to approve the hazardous mitigation analysis provided the consequences of the hazard mitigation analysis demonstrate:~~

- ~~1. Fires will be contained within unoccupied ESS rooms or areas for the minimum duration of the fire-resistance-rated separations identified in Section 1206.7.4.~~
- ~~2. Fires in occupied work centers will be detected in time to allow occupants within the room or area to safely evacuate.~~
- ~~3. Toxic and highly toxic gases released during fires will not reach concentrations in excess of IDLH level in the building or adjacent means of egress routes during the time deemed necessary to evacuate occupants from any affected area.~~
- ~~4. Flammable gases released from ESS during charging, discharging and normal operation will not exceed 25 percent of their lower flammability limit (LFL).~~
- ~~5. Flammable gases released from ESS during fire, overcharging and other abnormal conditions will be controlled through the use of ventilation of the gases preventing accumulation or by deflagration venting.~~

1207.1.4.2 Analysis approval. The fire code official is authorized to approve the hazardous mitigation analysis provided that the consequences of the hazard mitigation analysis demonstrate:

1. Fires will be contained within unoccupied ESS rooms or areas for the minimum duration of the fire-resistance-rated separations identified in Section 1207.7.4.
2. Fires in occupied work centers will be detected in time to allow occupants within the room or area to safely evacuate.

3. Toxic and highly toxic gases released during fires will not reach concentrations in excess of the IDLH level in the building or adjacent means of egress routes during the time deemed necessary to evacuate occupants from any affected area.

4. Flammable gases released from ESS during charging, discharging and normal operation will not exceed 25 percent of their lower flammability limit (LFL).

5. Flammable gases released from ESS during fire, overcharging and other abnormal conditions will be controlled through the use of ventilation of the gases, preventing accumulation, or by deflagration venting.

Item 12-21

Chapter 12, Energy Systems

[The SFM proposes to repeal California amendments and replace with model code language.]

~~1206.1.4.3 Additional protection measures. Construction, equipment and systems that are required for the ESS to comply with the hazardous mitigation analysis, including but not limited to those specifically described in Section 1206 shall be installed, maintained and tested in accordance with nationally recognized standards and specified design parameters.~~

1207.1.4.3 Additional protection measures. Construction, equipment and systems that are required for the ESS to comply with the hazardous mitigation analysis, including but not limited to those specifically described in Section 1207, shall be installed, maintained and tested in accordance with nationally recognized standards and specified design parameters.

Item 12-1

Chapter 12, Energy Systems

[The SFM proposes to repeal California amendments and replace with model code language.]

~~1206.1.5 Large-scale fire test. Where required elsewhere in Section 1206, large-scale fire testing shall be conducted on a representative ESS in accordance with UL 9540A. The testing shall be conducted or witnessed and reported by an approved testing laboratory and show that a fire involving one ESS will not propagate to an adjacent ESS, and where installed within buildings, enclosed areas and walk-in units will be contained within the room, enclosed area or walk-in unit for a duration equal to the fire resistance rating of the room separation specified in Section 1206.7.4. The test report shall be provided to the fire code official for review and approval in accordance with Section 104.7.2.~~

1207.1.5 Large-scale fire test. Where required elsewhere in Section 1206, large-scale fire testing shall be conducted on a representative ESS in accordance with UL 9540A. The testing shall be conducted or witnessed and reported by an approved testing laboratory and show that a fire involving one ESS will not propagate to an adjacent ESS, and where installed within buildings, enclosed areas and walk-in units will be contained within the room, enclosed area or walk-in unit for a duration equal to the fire-resistance rating of the room separation specified in Section 1207.7.4. The test report shall be provided to the fire code official for review and approval in accordance with Section 104.8.2.

Item 12-22

Chapter 12, Energy Systems

[The SFM proposes to repeal California amendments and replace with model code language.]

~~1206.1.6 Fire remediation. Where a fire or other event has damaged the ESS and ignition or re-ignition of the ESS is possible, the system owner, agent, or lessee shall take the following actions, at their expense, to mitigate the hazard or remove damaged equipment from the premises to a safe location.~~

1207.1.6 Fire remediation. Where a fire or other event has damaged the ESS and ignition or re-ignition of the ESS is possible, the system owner, agent or lessee shall take the following actions, at their expense, to mitigate the hazard or remove damaged equipment from the premises to a safe location.

Item 12-23

Chapter 12, Energy Systems

[The SFM proposes to repeal California amendments and replace with model code language.]

~~1206.1.6.1 Fire mitigation personnel. Where, in the opinion of the fire code official, it is essential for public safety that trained personnel be on-site to respond to possible ignition or re-ignition of a damaged ESS, the system owner, agent or lessee shall immediately dispatch one or more fire mitigation personnel to the premises, as required and approved, at their expense. These personnel shall remain on duty continuously after the fire department leaves the premises until the damaged energy storage equipment is removed from the premises, or earlier if the fire code official indicates the public safety hazard has been abated.~~

1207.1.6.1 Fire mitigation personnel. Where, in the opinion of the fire code official, it is essential for public safety that trained personnel be on-site to respond to possible ignition or re-ignition of a damaged ESS, the system owner, agent or lessee shall immediately dispatch one or more fire mitigation personnel to the premise, as required and approved, at their expense. These personnel shall remain on duty continuously after the fire department leaves the premise until the damaged energy storage

equipment is removed from the premises, or earlier if the fire code official indicates the public safety hazard has been abated.

Item 12-24

Chapter 12, Energy Systems

[The SFM proposes to repeal California amendments and replace with model code language.]

~~1206.1.6.2 Duties. On-duty fire mitigation personnel shall have the following responsibilities:~~

- ~~1. Keep diligent watch for fires, obstructions to means of egress and other hazards.~~
- ~~2. Immediately contact the fire department if their assistance is needed to mitigate any hazards or extinguish fires.~~
- ~~3. Take prompt measures for remediation of hazards in accordance with the decommissioning plan in Section 1206.2.3.~~
- ~~4. Take prompt measures to assist in the evacuation of the public from the structures.~~

1207.1.6.2 Duties. On-duty fire mitigation personnel shall have the following responsibilities:

1. Keep a diligent watch for fires, obstructions to means of egress and other hazards.
2. Immediately contact the fire department if their assistance is needed to mitigate any hazards or extinguish fires.
3. Take prompt measures for remediation of hazards in accordance with the decommissioning plan per Section 1207.2.3.
4. Take prompt measures to assist in the evacuation of the public from the structures.

Item 12-25

Chapter 12, Energy Systems

[The SFM proposes to repeal California amendments and replace with model code language.]

~~1206.2 Commissioning, decommissioning, operation and maintenance.
Commissioning, decommissioning, operation and maintenance shall be conducted in~~

~~accordance with this section.~~

1207.2 Commissioning, decommissioning, operation and maintenance.

Commissioning, decommissioning, operation and maintenance shall be conducted in accordance with this section.

Item 12-26

Chapter 12, Energy Systems

[The SFM proposes to repeal California amendments and replace with model code language.]

~~1206.2.1 Commissioning. Commissioning of newly installed ESS, and existing ESS that have been retrofitted, replaced or previously decommissioned and are returning to service shall be conducted prior to the ESS being placed in service in accordance with a commissioning plan that has been approved prior to initiating commissioning. The commissioning plan shall include the following:~~

- ~~1. A narrative description of the activities that will be accomplished during each phase of commissioning including the personnel intended to accomplish each of the activities.~~
- ~~2. A listing of the specific ESS and associated components, controls and safety related devices to be tested, a description of the tests to be performed and the functions to be tested.~~
- ~~3. Conditions under which all testing will be performed, which are representative of the conditions during normal operation of the system.~~
- ~~4. Documentation of the owner's project requirements and the basis of design necessary to understand the installation and operation of the ESS.~~
- ~~5. Verification that required equipment and systems are installed in accordance with the approved plans and specifications.~~
- ~~6. Integrated testing for all fire and safety systems.~~
- ~~7. Testing for any required thermal management, ventilation or exhaust systems associated with the ESS installation.~~
- ~~8. Preparation and delivery of operation and maintenance documentation.~~
- ~~9. Training of facility operating and maintenance staff.~~
- ~~10. Identification and documentation of the requirements for maintaining system performance to meet the original design intent during the operation phase.~~

~~11. Identification and documentation of personnel who are qualified to service, maintain and decommission the ESS, and respond to incidents involving the ESS, including documentation that such service has been contracted.~~

~~12. A decommissioning plan for removing the ESS from service, and from the facility in which it is located. The plan shall include details on providing a safe and orderly shutdown of energy storage and safety systems with notification to the code officials prior to the actual decommissioning of the system. The decommissioning plan shall include contingencies for removing an intact operational ESS from service, and for removing an ESS from service that has been damaged by a fire or another event.~~

~~Exception: Commissioning shall not be required for lead-acid and nickel-cadmium battery systems at facilities under the exclusive control of communications utilities that comply with NFPA 76 and operate at less than 50 VAC and 60 VDC. However, a decommissioning plan shall be provided and maintained when required by the fire code official.~~

1207.2.1 Commissioning. Commissioning of newly installed ESS and existing ESS that have been retrofitted, replaced or previously decommissioned and are returning to service shall be conducted prior to the ESS being placed in service in accordance with a commissioning plan that has been approved prior to initiating commissioning. The commissioning plan shall include the following:

1. A narrative description of the activities that will be accomplished during each phase of commissioning, including the personnel intended to accomplish each of the activities.
2. A listing of the specific ESS and associated components, controls and safety related devices to be tested, a description of the tests to be performed and the functions to be tested.
3. Conditions under which all testing will be performed, which are representative of the conditions during normal operation of the system.
4. Documentation of the owner's project requirements and the basis of design necessary to understand the installation and operation of the ESS.
5. Verification that required equipment and systems are installed in accordance with the approved plans and specifications.
6. Integrated testing for all fire and safety systems.
7. Testing for any required thermal management, ventilation or exhaust systems associated with the ESS installation.
8. Preparation and delivery of operation and maintenance documentation.

9. Training of facility operating and maintenance staff.

10. Identification and documentation of the requirements for maintaining system performance to meet the original design intent during the operation phase.

11. Identification and documentation of personnel who are qualified to service, maintain and decommission the ESS, and respond to incidents involving the ESS, including documentation that such service has been contracted for.

12. A decommissioning plan for removing the ESS from service, and from the facility in which it is located. The plan shall include details on providing a safe, orderly shutdown of energy storage and safety systems with notification to the code officials prior to the actual decommissioning of the system. The decommissioning plan shall include contingencies for removing an intact operational ESS from service, and for removing an ESS from service that has been damaged by a fire or another event.

Exception: Commissioning shall not be required for lead-acid and nickel cadmium battery systems at facilities under the exclusive control of communications utilities that comply with NFPA 76 and operate at less than 50 VAC and 60 VDC. A decommissioning plan shall be provided and maintained where required by the fire code official.

Item 12-27

Chapter 12, Energy Systems

[The SFM proposes to repeal California amendments and replace with model code language.]

~~1206.2.1.1 Initial acceptance testing. During the commissioning process an ESS shall be evaluated for proper operation in accordance with the manufacturer's instructions and the commissioning plan prior to final approval.~~

1207.2.1.1 Initial acceptance testing. During the commissioning process an ESS shall be evaluated for proper operation in accordance with the manufacturer's instructions and the commissioning plan prior to final approval.

Item 12-28

Chapter 12, Energy Systems

[The SFM proposes to repeal California amendments and replace with model code language.]

~~1206.2.1.2 Commissioning report. A report describing the results of the system commissioning and including the results of the initial acceptance testing required in Section 1206.2.1.1 shall be provided to the code official prior to final inspection and~~

~~approval and maintained at an approved on-site location.~~

1207.2.1.2 Commissioning report. A report describing the results of the system commissioning, including the results of the initial acceptance testing required in Section 1207.2.1.1, shall be provided to the fire code official prior to final inspection and approval and maintained at an approved on-site location.

Item 12-29

Chapter 12, Energy Systems

[The SFM proposes to repeal California amendments and replace with model code language.]

~~1206.2.2 Operation and maintenance. An operating and maintenance manual shall be provided to both the ESS owner or the authorized agent and the ESS operator before the ESS is put into operation and shall include the following:~~

- ~~1. Manufacturer's operation manuals and maintenance manuals for the entire ESS or for each component of the system requiring maintenance, that clearly identify the required routine maintenance actions.~~
- ~~2. Name, address and phone number of a service agency that has been contracted to service the ESS and its associated safety systems.~~
- ~~3. Maintenance and calibration information, including wiring diagrams, control drawings, schematics, system programming instructions and control sequence descriptions, for all energy storage control systems.~~
- ~~4. Desired or field-determined control set points that are permanently recorded on control drawings at control devices or, for digital control systems, in system programming instructions.~~
- ~~5. A schedule for inspecting and recalibrating all ESS controls.~~
- ~~6. A service record log form that lists the schedule for all required servicing and maintenance actions and space for logging such actions that are completed over time and retained on site.~~

~~The ESS shall be operated and maintained in accordance with the manual and a copy of the manual shall be retained at an approved on-site location.~~

1207.2.2 Operation and maintenance. An operating and maintenance manual shall be provided to both the ESS owner or the authorized agent and the ESS operator before the ESS is put into operation and shall include the following:

1. Manufacturer's operation manuals and maintenance manuals for the entire ESS or for each component of the system requiring maintenance, that clearly identify the required routine maintenance actions.

2.Name, address and phone number of a service agency that has been contracted to service the ESS and its associated safety systems.

3. Maintenance and calibration information, including wiring diagrams, control drawings, schematics, system programming instructions and control sequence descriptions, for all energy storage control systems.

4.Desired or field-determined control set points that are permanently recorded on control drawings at control devices or, for digital control systems, in system programming instructions.

5.A schedule for inspecting and recalibrating all ESS controls.

6. A service record log form that lists the schedule for all required servicing and maintenance actions and space for logging such actions that are completed over time and retained on site.

The ESS shall be operated and maintained in accordance with the manual and a copy of the manual shall be retained at an approved on-site location.

Item 12-30

Chapter 12, Energy Systems

[The SFM proposes to repeal California amendments and replace with model code language.]

~~1206.2.2.1 Ongoing inspection and testing. Systems that monitor and protect the ESS installation shall be inspected and tested in accordance with the manufacturer's instructions and the operating and maintenance manual. Inspection and testing records shall be maintained in the operation and maintenance manual.~~

1207.2.2.1 Ongoing inspection and testing. Systems that monitor and protect the ESS installation shall be inspected and tested in accordance with the manufacturer's instructions and the operating and maintenance manual. Inspection and testing records shall be maintained in the operation and maintenance manual.

Item 12-31

Chapter 12, Energy Systems

[The SFM proposes to repeal California amendments and replace with model code language.]

~~1206.2.3 Decommissioning. The code official shall be notified prior to the decommissioning of an ESS. Decommissioning shall be performed in accordance with the decommissioning plan that includes the following:~~

- ~~1. A narrative description of the activities to be accomplished for removing the ESS from service, and from the facility in which it is located.~~
- ~~2. A listing of any contingencies for removing an intact operational ESS from service, and for removing an ESS from service that has been damaged by a fire or another event.~~

1207.2.3 Decommissioning. The code official shall be notified prior to the decommissioning of an ESS. Decommissioning shall be performed in accordance with the decommissioning plan that includes the following:

1. A narrative description of the activities to be accomplished for removing the ESS from service, and from the facility in which it is located.
2. A listing of any contingencies for removing an intact operational ESS from service, and for removing an ESS from service that has been damaged by a fire or another event.

Item 12-32

Chapter 12, Energy Systems

[The SFM proposes to repeal California amendments and replace with model code language.]

~~1206.3.3 Utility interactive systems. Inverters shall be listed and labeled in accordance with UL 1741. Only inverters listed and labeled for utility interactive system use and identified as interactive shall be allowed to operate in parallel with the electric utility power system to supply power to common loads.~~

1207.3.3 Utility interactive systems. Inverters shall be listed and labeled in accordance with UL 1741. Only inverters listed and labeled for utility interactive system use and identified as interactive shall be allowed to operate in parallel with the electric utility power system to supply power to common loads.

Item 12-33

Chapter 12, Energy Systems

[The SFM proposes to repeal California amendments and replace with model code language.]

~~1206.3.4 Energy storage management system. Where required by the ESS listing an approved energy storage management system shall be provided for that which monitors and balances cell voltages, currents and temperatures within the manufacturer's specifications. The system shall disconnect electrical connections to the ESS or otherwise place it in a safe~~

~~condition if potentially hazardous temperatures or other conditions such as short circuits, over voltage or under voltage are detected.~~

1207.3.4 Energy storage management system. Where required by the ESS listing an approved energy storage management system shall be provided for that which monitors and balances cell voltages, currents and temperatures within the manufacturer's specifications. The system shall disconnect electrical connections to the ESS or otherwise place it in a safe condition if potentially hazardous temperatures or other conditions such as short circuits, over voltage or under voltage are detected.

Item 12-34

Chapter 12, Energy Systems

[The SFM proposes to repeal California amendments and replace with model code language.]

~~1206.3.5 Enclosures. Enclosures of ESS shall be of noncombustible construction.~~

1207.3.5 Enclosures. Enclosures of ESS shall be of noncombustible construction.

Item 12-35

Chapter 12, Energy Systems

[The SFM proposes to repeal California amendments and replace with model code language.]

~~1206.3.6 Repairs. Repairs of ESS shall only be done by qualified personnel. Repairs with other than identical parts shall be considered retrofitting and comply with Section 1206.3.7. Repairs shall be documented in the service records log.~~

1207.3.6 Repairs. Repairs of ESS shall only be done by qualified personnel. Repairs with other than identical parts shall be considered retrofitting and comply with Section 1207.3.7. Repairs shall be documented in the service records log.

Item 12-36

Chapter 12, Energy Systems

[The SFM proposes to repeal California amendments and replace with model code language.]

~~1206.3.7 Retrofits. Retrofitting of an existing ESS shall comply with the following:~~

~~1. A construction permit shall be obtained in accordance with Section~~

~~105.7.7.~~

~~2. New batteries, battery modules, capacitors and similar ESS components shall be listed.~~

~~3. Battery management and other monitoring systems shall be connected and installed in accordance with the manufacturer's instructions.~~

~~4. The overall installation shall continue to comply with UL 9540 listing requirements, where applicable.~~

~~5. Systems that have been retrofitted shall be commissioned in accordance with Section 1206.2.1.~~

~~6. Retrofits shall be documented in the service records log.~~

1207.3.7 Retrofits. Retrofitting of an existing ESS shall comply with the following:

1. A construction permit shall be obtained in accordance with Section 105.6.5.

2. New batteries, battery modules, capacitors and similar ESS components shall be listed.

3. Battery management and other monitoring systems shall be connected and installed in accordance with the manufacturer's instructions.

4. The overall installation shall continue to comply with UL 9540 listing requirements, where applicable.

5. Systems that have been retrofitted shall be commissioned in accordance with Section 1207.2.1.

6. Retrofits shall be documented in the service records log.

Item 12-37

Chapter 12, Energy Systems

[The SFM proposes to repeal California amendments and replace with model code language.]

~~1206.3.7.1 Retrofitting Lead Acid and Nickel Cadmium. Section 1206.3.7 shall not apply to retrofitting of lead acid and nickel cadmium batteries with other lead acid and nickel cadmium batteries at facilities under the exclusive control of communications utilities that comply with NFPA 76 and operate at less than 50 VAC and 60 VDC.~~

1207.3.7.1 Retrofitting Lead Acid and Nickel Cadmium. Section 1207.3.7 shall not

apply to retrofitting of lead-acid and nickel-cadmium batteries with other lead-acid and nickel-cadmium batteries at facilities under the exclusive control of communications utilities that comply with NFPA 76 and operate at less than 50 VAC and 60 VDC.

Item 12-38

Chapter 12, Energy Systems

[The SFM proposes to repeal California amendments and replace with model code language.]

~~1206.3.8 Replacements. Replacements of ESS shall be considered new ESS installations and shall comply with the provisions of Section 1206 as applicable to new ESS. The ESS being replaced shall be decommissioned in accordance with Section 1206.2.3.~~

1207.3.8 Replacements. Replacements of ESS shall be considered new ESS installations and shall comply with the provisions of Section 1207 as applicable to new ESS. The ESS being replaced shall be decommissioned in accordance with Section 1207.2.3.

Item 12-39

Chapter 12, Energy Systems

[The SFM proposes to repeal California amendments and replace with model code language.]

~~1206.3.9 Reused and repurposed equipment. Equipment and materials shall only be reused or reinstalled as permitted in Section 104.7.1. Storage batteries previously used in other applications, such as electric vehicle propulsion, shall not be reused in applications regulated by Chapter 12, unless (1) approved by the fire code official and (2) the equipment is refurbished by a battery refurbishing company approved in accordance with UL 1974.~~

1207.3.9 Reused and repurposed equipment. Equipment and materials shall only be reused or reinstalled as permitted in Section 104.8.1. Storage batteries previously used in other applications, such as electric vehicle propulsion, shall not be reused in applications regulated by Chapter 12, unless (1) approved by the fire code official and (2) the equipment is refurbished by a battery refurbishing company approved in accordance with UL 1974.

Item 12-40

Chapter 12, Energy Systems

[The SFM proposes to repeal California amendments and replace with model code language.]

~~1206.4 General installations requirements. Stationary and mobile ESS shall comply~~

~~with the requirements of Section 1206.4.1 through 1206.4.12.~~

1207.4 General installations requirements. Stationary and mobile ESS shall comply with the requirements of Section 1207.4.1 through 1207.4.12.

Item 12-41

Chapter 12, Energy Systems

[The SFM proposes to repeal California amendments and replace with model code language.]

~~1206.4.1 Electrical disconnects. Where the ESS disconnecting, means is not within sight of the main electrical service disconnecting means, placards or directories shall be installed at the location of the main electrical service disconnecting means indicating the location of stationary storage battery system disconnecting means in accordance with NFPA 70.~~

~~Exception: Electrical disconnects for lead-acid and nickel-cadmium battery systems at facilities under the exclusive control of communications utilities and operating at less than 50 VAC and 60 VDC shall be permitted to have electrical disconnects signage in accordance with NFPA 76.~~

1207.4.1 Electrical disconnects. Where the ESS disconnecting, means is not within sight of the main electrical service disconnecting means, placards or directories shall be installed at the location of the main electrical service disconnecting means indicating the location of stationary storage battery system disconnecting means in accordance with California Electrical Code.

Exception: Electrical disconnects for lead-acid and nickel-cadmium battery systems at facilities under the exclusive control of communications utilities and operating at less than 50 VAC and 60 VDC shall be permitted to have electrical disconnects signage in accordance with NFPA 76.

Item 12-42

Chapter 12, Energy Systems

[The SFM proposes to repeal California amendments and replace with model code language.]

~~1206.4.2 Working clearances. Access and working space shall be provided and maintained about all electrical equipment to permit ready and safe operation and maintenance of such equipment in accordance with NFPA 70 and the manufacturer's instructions.~~

1207.4.2 Working clearances. Access and working space shall be provided and maintained about all electrical equipment to permit ready and safe operation and maintenance of such equipment in accordance with California Electrical Code

and the manufacturer's instructions.

Item 12-43

Chapter 12, Energy Systems

[The SFM proposes to repeal California amendments and replace with model code language.]

~~1206.4.3 Fire-resistance rated separations. Rooms and other indoor areas containing ESS shall be separated from other areas of the building in accordance with Section 1206.7.4. ESS shall be permitted to be in the same room with the equipment they support.~~

1207.4.3 Fire-resistance rated separations. Rooms and other indoor areas containing ESS shall be separated from other areas of the building in accordance with Section 1207.7.4. ESS shall be permitted to be in the same room with the equipment they support.

Item 12-44

Chapter 12, Energy Systems

[The SFM proposes to repeal California amendments and replace with model code language.]

~~1206.4.4 Seismic and structural design. Stationary ESS shall comply with the seismic design requirements in Chapter 16 of the California Building Code, and shall not exceed the floor loading limitation of the building.~~

1207.4.4 Seismic and structural design. Stationary ESS shall comply with the seismic design requirements in Chapter 16 of the California Building Code, and shall not exceed the floor loading limitation of the building.

Item 12-45

Chapter 12, Energy Systems

[The SFM proposes to repeal California amendments and replace with model code language.]

~~1206.4.5 Vehicle impact protection. Where ESS are subject to impact by a motor vehicle, including fork lifts, vehicle impact protection shall be provided in accordance with Section 312.~~

1207.4.5 Vehicle impact protection. Where ESS are subject to impact by a motor vehicle, including fork lifts, vehicle impact protection shall be provided in accordance with Section 312.

Item 12-46

Chapter 12, Energy Systems

[The SFM proposes to repeal California amendments and replace with model code language.]

~~1206.4.6 Combustible storage. Combustible materials shall not be stored in ESS rooms, areas, or walk-in units. Combustible materials in occupied work centers covered by Section 1206.4.10 shall be stored at least 3 feet (914 mm) from ESS cabinets.~~

1207.4.6 Combustible storage. Combustible materials shall not be stored in ESS rooms, areas, or walk-in units. Combustible materials in occupied work centers covered by Section 1207.4.10 shall be stored at least 3 feet (914 mm) from ESS cabinets.

Item 12-47

Chapter 12, Energy Systems

[The SFM proposes to repeal California amendments and replace with model code language.]

~~1206.4.7 Toxic and highly toxic gases. ESS that have the potential to release toxic and highly toxic gas during charging, discharging and normal use conditions shall be provided with a hazardous exhaust system in accordance with Section 502.8 of the California Mechanical Code.~~

1207.4.7 Toxic and highly toxic gases. ESS that have the potential to release toxic and highly toxic gas during charging, discharging and normal use conditions shall be provided with a hazardous exhaust system in accordance with Section 502.8 Chapter 5 of the California Mechanical Code.

Item 12-48

Chapter 12, Energy Systems

[The SFM proposes to repeal California amendments and replace with model code language.]

~~1206.4.8 Signage. Approved signs shall be provided on or adjacent to all entry doors for ESS rooms or areas and on enclosures of ESS cabinets and walk-in units located outdoors, on rooftops or in open parking garages. Signs designed to meet both the requirements of this section and NFPA 70 shall be permitted. The signage shall include the following or equivalent.~~

~~1. "Energy Storage System", "Battery Storage System", "Capacitor Energy Storage System", or the equivalent.~~

~~2. The identification of the electrochemical ESS technology present.~~

~~3. "Energized electrical circuits"~~

~~4. If water-reactive electrochemical ESS are present the signage shall include "APPLY NO WATER"~~

~~5. Current contact information, including phone number, for personnel authorized to service the equipment and for fire mitigation personnel required by Section 1206.1.6.1.~~

~~Exception: Existing electrochemical ESS shall be permitted to include the signage required at the time they were installed.~~

1207.4.8 Signage. Approved signs shall be provided on or adjacent to all entry doors for ESS rooms or areas and on enclosures of ESS cabinets and walk-in units located outdoors, on rooftops or in open parking garages. Signs designed to meet both the requirements of this section and California Electrical Code shall be permitted. The signage shall include the following or equivalent.

1. "Energy Storage System", "Battery Storage System", "Capacitor Energy Storage System", or the equivalent.

2. The identification of the electrochemical ESS technology present.

3. "Energized electrical circuits"

4. If water-reactive electrochemical ESS are present the signage shall include "APPLY NO WATER"

5. Current contact information, including phone number, for personnel authorized to service the equipment and for fire mitigation personnel required by Section 1207.1.6.1.

Exception: Existing electrochemical ESS shall be permitted to include the signage required at the time they were installed.

Item 12-49

Chapter 12, Energy Systems

[The SFM proposes to repeal California amendments and replace with model code language.]

~~1206.4.9 Security of installations. Rooms, areas and walk-in units in which electrochemical ESS are located shall be secured against unauthorized entry and safeguarded in an approved manner. Security barriers, fences, landscaping, and other enclosures shall not inhibit the required air flow to or exhaust from the electrochemical ESS and its components.~~

1207.4.9 Security of installations. Rooms, areas and walk-in units in which electrochemical ESS are located shall be secured against unauthorized entry and safeguarded in an approved manner. Security barriers, fences, landscaping, and other enclosures shall not inhibit the required air flow to or exhaust from the electrochemical ESS and its components.

Item 12-50

Chapter 12, Energy Systems

[The SFM proposes to repeal California amendments and replace with model code language.]

~~1206.4.10 Occupied work centers. Electrochemical ESS located in rooms or areas occupied by personnel not directly involved with maintenance, service and testing of the systems shall comply with the following.~~

- ~~1. Electrochemical ESS located in occupied work centers shall be housed in locked noncombustible cabinets or other enclosures to prevent access by unauthorized personnel.~~
- ~~2. Where electrochemical ESS are contained in cabinets in occupied work centers, the cabinets shall be located within 10 feet (3048 mm) of the equipment that they support.~~
- ~~3. Cabinets shall include signage complying with Section 1206.4.8.~~

1207.4.10 Occupied work centers. Electrochemical ESS located in rooms or areas occupied by personnel not directly involved with maintenance, service and testing of the systems shall comply with the following.

1. Electrochemical ESS located in occupied work centers shall be housed in locked noncombustible cabinets or other enclosures to prevent access by unauthorized personnel.
2. Where electrochemical ESS are contained in cabinets in occupied work centers, the cabinets shall be located within 10 feet (3048 mm) of the equipment that they support.
3. Cabinets shall include signage complying with Section 1207.4.8.

Item 12-51

Chapter 12, Energy Systems

[The SFM proposes to repeal California amendments and replace with model code language.]

~~1206.4.11 Open rack installations. Where electrochemical ESS are installed in a separate equipment room and only authorized personnel have access to the room, they shall be permitted to be installed on an open rack for ease of maintenance.~~

1207.4.11 Open rack installations. Where electrochemical ESS are installed in a separate equipment room and only authorized personnel have access to the room, they shall be permitted to be installed on an open rack for ease of maintenance.

Item 12-52

Chapter 12, Energy Systems

[The SFM proposes to repeal California amendments and replace with model code language.]

~~1206.4.12 Walk-in units. Walk-in units shall only be entered for inspection, maintenance and repair of ESS units and ancillary equipment, and shall not be occupied for other purposes.~~

1207.4.12 Walk-in units. Walk-in units shall only be entered for inspection, maintenance and repair of ESS units and ancillary equipment, and shall not be occupied for other purposes.

Item 12-53

Chapter 12, Energy Systems

[The SFM proposes to repeal California amendments and replace with model code language.]

~~1206.5 Electrochemical ESS Protection. The protection of electrochemical ESS shall be in accordance with Sections 1206.5.1 through 1206.5.8 where required by Section 1206.7 through 1206.10.~~

1207.5 Electrochemical ESS Protection. The protection of electrochemical ESS shall be in accordance with Sections 1207.5.1 through 1207.5.8 where required by Section 1207.7 through 1207.10.

Item 12-54

Chapter 12, Energy Systems

[The SFM proposes to repeal California amendments and replace with model code language.]

~~TABLE 1206.5 MAXIMUM ALLOWABLE QUANTITIES OF ELECTROCHEMICAL ESS~~

| TECHNOLOGY | MAXIMUM ALLOWABLE QUANTITIES^a |
|-------------------------------------|---|
| STORAGE BATTERIES | |
| <i>Lead acid, all types</i> | <i>Unlimited</i> |
| <i>Nickel cadmium (Ni-Cd)</i> | <i>Unlimited</i> |
| <i>Nickel metal hydride (Ni-MH)</i> | <i>Unlimited</i> |
| <i>Lithium-ion</i> | <i>600 KWh</i> |
| <i>Flow batteries^b</i> | <i>600 KWh</i> |
| <i>Other battery technologies</i> | <i>200 KWh</i> |
| CAPACITORS | |
| <i>All types</i> | <i>20 KWh</i> |
| OTHER ELECTROCHEMICAL ESS | |
| <i>All types</i> | <i>20 KWh</i> |

a. For electrochemical ESS units rated in Amp-Hours, KWh shall equal rated voltage multiplied by the Amp-hour rating divided by 1000

b. Shall include vanadium, zinc-bromine, polysulfide-bromide, and other flowing electrolyte type technologies

TABLE 1207.5
MAXIMUM ALLOWABLE QUANTITIES OF ELECTROCHEMICAL ESS

| TECHNOLOGY | MAXIMUM ALLOWABLE QUANTITIES^a |
|-------------------------------------|---|
| STORAGE BATTERIES | |
| <u>Flow batteries^b</u> | <u>600 kWh</u> |
| <u>Lead acid, all types</u> | <u>Unlimited</u> |
| <u>Lithium-ion</u> | <u>600 kWh</u> |
| <u>Nickel metal hydride (Ni-MH)</u> | <u>Unlimited</u> |
| <u>Nickel cadmium (Ni-Cd)</u> | <u>Unlimited</u> |
| <u>Other battery technologies</u> | <u>200 kWh</u> |
| CAPACITORS | |
| <u>All types</u> | <u>20 kWh</u> |
| OTHER ELECTROCHEMICAL ESS | |
| <u>All types</u> | <u>20 kWh</u> |

a. For electrochemical ESS units rated in amp-hours, kWh shall equal rated voltage multiplied by the amp-hour rating divided by 1,000.

b. Shall include vanadium, zinc-bromine, polysulfide-bromide, and other flowing electrolyte type technologies.

Item 12-55

Chapter 12, Energy Systems

[The SFM proposes to repeal California amendments and replace with model code language.]

~~1206.5.1 Size and separation. Electrochemical ESS shall be segregated into groups not exceeding 50 KWh (180 Mega joules). Each group shall be separated a minimum 3 feet (914 mm) from other groups and from walls in the storage room or area. The storage arrangements shall comply with Chapter 10.~~

~~Exceptions:~~

- ~~1. Lead-acid and nickel-cadmium battery systems in facilities under the exclusive control of communications utilities and operating at less than 50 VAC and 60 VDC in accordance with NFPA 76.~~
- ~~2. The fire code official is authorized to approve larger capacities or smaller separation distances based on large-scale fire testing complying with Section 1206.1.5.~~

1207.5.1 Size and separation. Electrochemical ESS shall be segregated into groups not exceeding 50 kWh (180 Mega joules). Each group shall be separated a minimum 3 feet (914 mm) from other groups and from walls in the storage room or area. The storage arrangements shall comply with Chapter 10.

Exceptions:

1. Lead-acid and nickel-cadmium battery systems in facilities under the exclusive control of communications utilities and operating at less than 50 VAC and 60 VDC in accordance with NFPA 76.
2. The fire code official is authorized to approve larger capacities or smaller separation distances based on large-scale fire testing complying with Section 1207.1.5.

Item 12-56

Chapter 12, Energy Systems

[The SFM proposes to repeal California amendments and replace with model code language.]

~~1206.5.2 Maximum allowable quantities. Fire areas within rooms, areas and walk-in units containing electrochemical ESS shall not exceed the maximum allowable quantities in Table 1206.5.~~

~~Exceptions:~~

~~1. Where approved by the fire code official, rooms, areas and walk-in units containing electrochemical ESS that exceed the amounts in Table 1206.5 shall be permitted based on a hazard mitigation analysis in accordance with Section 1206.1.4 and large-scale fire testing complying with Section 1206.1.5.~~

~~2. Lead-acid and nickel-cadmium battery systems installed in facilities under the exclusive control of communications utilities, and operating at less than 50 VAC and 60 VDC in accordance with NFPA 76.~~

~~3. Dedicated-use buildings in compliance with Section 1206.7.1.~~

1207.5.2 Maximum allowable quantities. Fire areas within rooms, areas and walk-in units containing electrochemical ESS shall not exceed the maximum allowable quantities in Table 1207.5.

Exceptions:

1. Where approved by the fire code official, rooms, areas and walk-in units containing electrochemical ESS that exceed the amounts in Table 1207.5 shall be permitted based on a hazard mitigation analysis in accordance with Section 1207.1.4 and large-scale fire testing complying with Section 1207.1.5.

2. Lead-acid and nickel-cadmium battery systems installed in facilities under the exclusive control of communications utilities, and operating at less than 50 VAC and 60 VDC in accordance with NFPA 76.

3. Dedicated-use buildings in compliance with Section 1207.7.1.

Item 12-57

Chapter 12, Energy Systems

[The SFM proposes to repeal California amendments and replace with model code language.]

~~1206.5.2.1 Mixed electrochemical energy systems. Where rooms, areas and walk-in units contain different types of electrochemical energy technologies, the total aggregate quantities of the systems shall be determined based on the sum of percentages of each technology type quantity divided by the maximum allowable quantity of each technology type. The sum of the percentages shall not exceed 100 percent of the maximum allowable quantity.~~

1207.5.2.1 Mixed electrochemical energy systems. Where rooms, areas and walk-in units contain different types of electrochemical energy

technologies, the total aggregate quantities of the systems shall be determined based on the sum of percentages of each technology type quantity divided by the maximum allowable quantity of each technology type. The sum of the percentages shall not exceed 100 percent of the maximum allowable quantity.

Item 12-58

Chapter 12, Energy Systems

[The SFM proposes to repeal California amendments and replace with model code language.]

~~1206.5.3 Elevation. Electrochemical ESS shall not be located in the following areas:~~

- ~~1. Where the floor is located more than 75 feet (22 860 mm) above the lowest level of fire department vehicle access, or~~
- ~~2. Where the floor is located below the lowest level of exit discharge.~~

~~Exceptions:~~

- ~~1. Lead-acid and Nickel-cadmium battery systems less than 50 VAC and 60 VDC installed in facilities under the exclusive control of communications utilities in accordance with NFPA 76.~~
- ~~2. Where approved, installations shall be permitted in underground vaults complying with NFPA 70, Article 450, Part III.~~
- ~~3. Where approved by the fire code official, installations shall be permitted on higher and lower floors.~~

1207.5.3 Elevation. Electrochemical ESS shall not be located in the following areas:

1. Where the floor is located more than 75 feet (22 860 mm) above the lowest level of fire department vehicle access, or
2. Where the floor is located below the lowest level of exit discharge.

Exceptions:

1. Lead-acid and Nickel-cadmium battery systems less than 50 VAC and 60 VDC installed in facilities under the exclusive control of communications utilities in accordance with NFPA 76.
2. Where approved, installations shall be permitted in underground vaults complying with *California Electrical Code*, Article 450, Part III.
3. Where approved by the fire code official, installations shall be permitted

on higher and lower floors.

Item 12-59

Chapter 12, Energy Systems

[The SFM proposes to repeal California amendments and replace with model code language.]

~~1206.5.4 Fire detection. An approved automatic smoke detection system or radiant energy-sensing fire detection system complying with Section 907.2 shall be installed in rooms, indoor areas, and walk-in units containing electrochemical ESS. An approved radiant energy-sensing fire detection system shall be installed to protect open parking garage and rooftop installations. Alarm signals from detection systems shall be transmitted to a central station, proprietary or remote station service in accordance with NFPA 72, or where approved to a constantly attended location.~~

1207.5.4 Fire detection. An approved automatic smoke detection system or radiant energy-sensing fire detection system complying with Section 907.2 shall be installed in rooms, indoor areas, and walk-in units containing electrochemical ESS. An approved radiant energy-sensing fire detection system shall be installed to protect open parking garage and rooftop installations. Alarm signals from detection systems shall be transmitted to a central station, proprietary or remote station service in accordance with NFPA 72, or where approved to a constantly attended location.

Item 12-60

Chapter 12, Energy Systems

[The SFM proposes to repeal California amendments and replace with model code language.]

~~1206.5.4.1 System status. Where required by the fire code official, visible annunciation shall be provided on cabinet exteriors or in other approved locations to indicate that potentially hazardous conditions associated with the ESS exist.~~

1207.5.4.1 System status. Where required by the fire code official, visible annunciation shall be provided on cabinet exteriors or in other approved locations to indicate that potentially hazardous conditions associated with the ESS exist.

Item 12-61

Chapter 12, Energy Systems

[The SFM proposes to repeal California amendments and replace with model code language.]

~~1206.5.5 Fire suppression systems. Rooms and areas within buildings and walk-in units containing electrochemical ESS shall be protected by an automatic fire suppression system designed and installed in accordance with one of the following:~~

- ~~1. An automatic sprinkler system designed and installed in accordance with Section 903.3.1.1 with a minimum density of 0.3 gpm/ft. based on the fire area or 2,500 ft. design area, whichever is smaller.~~
- ~~2. Where approved, an automatic sprinkler system designed and installed in accordance with Section 903.3.1.1 with a sprinkler hazard classification based on large-scale fire testing complying with Section 1206.1.5.~~
- ~~3. The following alternate automatic fire extinguishing systems designed and installed in accordance with Section 904, provided the installation is approved by the fire code official based on large-scale fire testing complying with Section 1206.1.5~~

~~NFPA 12, Standard on Carbon Dioxide Extinguishing Systems
NFPA 15, Standard for Water Spray Fixed Systems for Fire Protection
NFPA 750, Standard on Water Mist Fire Protection Systems
NFPA 2001, Standard on Clean Agent Fire Extinguishing Systems
NFPA 2010, Standard for Fixed Aerosol Fire-Extinguishing Systems~~

~~Exception: Fire suppression systems for lead-acid and nickel-cadmium battery systems at facilities under the exclusive control of communications utilities that operate at less than 50 VAC and 60 VDC shall be provided where required by NFPA 76.~~

1207.5.5 Fire suppression systems. Rooms and areas within buildings and walk-in units containing electrochemical ESS shall be protected by an automatic fire suppression system designed and installed in accordance with one of the following:

1. An automatic sprinkler system designed and installed in accordance with Section 903.3.1.1 with a minimum density of 0.3 gpm/ft² based on the fire area or 2,500 square-foot design area, whichever is smaller.
2. Where approved, an automatic sprinkler system designed and installed in accordance with Section 903.3.1.1 with a sprinkler hazard classification based on large-scale fire testing complying with Section 1207.1.5.
3. The following alternate automatic fire extinguishing systems designed and installed in accordance with Section 904, provided the installation is approved by the fire code official based on large-scale fire testing complying with Section 1207.1.5

NFPA 12, Standard on Carbon Dioxide Extinguishing Systems
NFPA 15, Standard for Water Spray Fixed Systems for Fire Protection
NFPA 750, Standard on Water Mist Fire Protection Systems
NFPA 2001, Standard on Clean Agent Fire Extinguishing Systems
NFPA 2010, Standard for Fixed Aerosol Fire-Extinguishing Systems

Exception: Fire suppression systems for lead-acid and nickel-cadmium battery systems at facilities under the exclusive control of communications utilities that operate at less than 50 VAC and 60 VDC shall be provided where required by NFPA 76.

Item 12-62

Chapter 12, Energy Systems

[The SFM proposes to repeal California amendments and replace with model code language.]

~~1206.5.5.1 Water-reactive systems. Electrochemical ESS that utilize water-reactive materials shall be protected by an approved alternative automatic fire-extinguishing system in accordance with Section 904, where the installation is approved by the fire code official based on large-scale fire testing complying with Section 1206.1.5.~~

1207.5.5.1 Water-reactive systems. Electrochemical ESS that utilize water-reactive materials shall be protected by an approved alternative automatic fire-extinguishing system in accordance with Section 904, where the installation is approved by the fire code official based on large-scale fire testing complying with Section 1207.1.5.

Item 12-63

Chapter 12, Energy Systems

[The SFM proposes to repeal California amendments and replace with model code language.]

~~1206.5.6 Maximum enclosure size. Outdoor walk-in units housing ESS shall not exceed 53 feet by 8 feet by 9.5 feet high not including bolt-on HVAC and related equipment as approved. Outdoor walk-in units exceeding these limitations shall be considered indoor installations and comply with the requirements in Section 1206.7.~~

1207.5.6 Maximum enclosure size. Outdoor walk-in units housing ESS shall not exceed 53 feet by 8 feet by 9.5 feet high not including bolt-on HVAC and related equipment as approved. Outdoor walk-in units exceeding these limitations shall be considered indoor installations and comply with the requirements in Section 1207.7.

Item 12-64

Chapter 12, Energy Systems

[The SFM proposes to repeal California amendments and replace with model code language.]

~~1206.5.7 Vegetation control. Areas within 10 feet (3 m) on each side of outdoor ESS shall be cleared of combustible vegetation and other combustible growth. Single specimens of trees, shrubbery, or cultivated ground cover such as green grass, ivy, succulents, or similar plants used as ground covers shall be permitted to be exempt, provided that they do not form a means of readily transmitting fire.~~

1207.5.7 Vegetation control. Areas within 10 feet (3 m) on each side of outdoor ESS shall be cleared of combustible vegetation and other combustible growth. Single specimens of trees, shrubbery, or cultivated ground cover such as green grass, ivy, succulents, or similar plants used as ground covers shall be permitted to be exempt, provided that they do not form a means of readily transmitting fire.

Item 12-65

Chapter 12, Energy Systems

[The SFM proposes to repeal California amendments and replace with model code language.]

~~1206.5.8 Means of egress separation. ESS located outdoors and in open parking garages shall be separated from any means of egress as required by the fire code official to ensure safe egress under fire conditions, but in no case, less than 10 feet (3048 mm).~~

~~Exception: The fire code official is authorized to approve a reduced separation distance if large-scale fire testing complying with Section 1206.1.5 is provided and shows that a fire involving the ESS will not adversely impact occupant egress.~~

1207.5.8 Means of egress separation. ESS located outdoors and in open parking garages shall be separated from any means of egress as required by the fire code official to ensure safe egress under fire conditions, but in no case, less than 10 feet (3048 mm).

Exception: The fire code official is authorized to approve a reduced separation distance if large-scale fire testing complying with Section 1207.1.5 is provided and shows that a fire involving the ESS will not adversely impact occupant egress.

Item 12-66

Chapter 12, Energy Systems

[The SFM proposes to repeal California amendments and replace with model code language.]

~~1206.6 Electrochemical ESS technology specific protection. Electrochemical ESS installations shall comply with the requirements of this section in accordance with the applicable requirements of Table 1206.6.~~

1207.6 Electrochemical ESS technology specific protection. Electrochemical ESS installations shall comply with the requirements of this section in accordance with the applicable requirements of Table 1207.6.

Item 12-67

Chapter 12, Energy Systems

[The SFM proposes to repeal California amendments and replace with model code language.]

~~TABLE 1206.6~~
~~ELECTROCHEMICAL ESS TECHNOLOGY SPECIFIC REQUIREMENTS~~

| COMPLIANCE REQUIRED^b | BATTERY TECHNOLOGY | | | | OTHER ESS AND BATTERY TECHNOLOGIES^b | CAPACITOR ESS^b |
|--|--------------------------------------|--|------------------------------------|------------------------|--|---|
| | Lead- acid | Ni- Cad and Ni- MH | Lithium- ion | Flow | | |
| 1206.6.1 Exhaust ventilation | Yes | Yes | No | Yes | Yes | Yes |
| 1206.6.2 Spill control and neutralization | Yes^e | Yes^e | No | Yes | Yes | Yes |
| 1206.6.3 Explosion control | Yes^a | Yes^a | Yes | No | Yes | Yes |
| 1206.6.4 Safety caps | Yes | Yes | No | No | Yes | Yes |
| 1206.6.5 Thermal runaway | Yes^d | Yes | Yes^e | No | Yes^e | Yes |

~~a. Not required for lead-acid and nickel cadmium batteries at facilities under the exclusive control of communications utilities that comply with NFPA 76 and operate at less than 50 VAC and 60 VDC.~~

~~b. Protection shall be provided unless documentation acceptable to the fire code official~~

is provided in accordance with Section 104.7.2 that provides justification why the protection is not necessary based on the technology used.

c. Applicable to vented (i.e. flooded) type nickel cadmium and lead acid batteries.

d. Not required for vented (i.e. flooded) type lead acid batteries.

e. The thermal runaway protection is permitted to be part of a battery management system that has been evaluated with the battery as part of the evaluation to UL 1973.

TABLE 1207.6
ELECTROCHEMICAL ESS TECHNOLOGY SPECIFIC REQUIREMENTS

| COMPLIANCE REQUIRED ^b | BATTERY TECHNOLOGY | | | | OTHER ESS AND BATTERY TECHNOLOGIES ^b | CAPACITOR ESS ^b |
|--|---------------------------|---|-------------------------|-------------|--|---------------------------------------|
| | Lead- acid | Ni- Cad and Ni- MH | Lithium- ion | Flow | | |
| <u>1207.6.1 Exhaust ventilation</u> | <u>Yes</u> | <u>Yes</u> | <u>No</u> | <u>Yes</u> | <u>Yes</u> | <u>Yes</u> |
| <u>1207.6.2 Spill control and neutralization</u> | <u>Yes ^c</u> | <u>Yes ^c</u> | <u>No</u> | <u>Yes</u> | <u>Yes</u> | <u>Yes</u> |
| <u>1207.6.3 Explosion control</u> | <u>Yes ^a</u> | <u>Yes ^a</u> | <u>Yes</u> | <u>No</u> | <u>Yes</u> | <u>Yes</u> |
| <u>1207.6.4 Safety caps</u> | <u>Yes</u> | <u>Yes</u> | <u>No</u> | <u>No</u> | <u>Yes</u> | <u>Yes</u> |
| <u>1207.6.5 Thermal runaway</u> | <u>Yes ^d</u> | <u>Yes</u> | <u>Yes ^e</u> | <u>No</u> | <u>Yes ^e</u> | <u>Yes</u> |

a. Not required for lead-acid and nickel cadmium batteries at facilities under the exclusive control of communications utilities that comply with NFPA 76 and operate at less than 50 VAC and 60 VDC.

b. Protection shall be provided unless documentation acceptable to the fire code official is provided in accordance with Section 104.8.2 that provides justification why the protection is not necessary based on the technology used.

c. Applicable to vented (i.e. flooded) type nickel cadmium and lead acid batteries.

d. Not required for vented (i.e. flooded) type lead acid batteries.

e. The thermal runaway protection is permitted to be part of a battery management system that has been evaluated with the battery as part of the evaluation to UL 1973.

Item 12-68

Chapter 12, Energy Systems

[The SFM proposes to repeal California amendments and replace with model code language.]

~~1207.6.1 Exhaust ventilation. Where required by Table 1206.6 or elsewhere in this code, exhaust ventilation of rooms, areas, and walk-in units containing electrochemical ESS shall be provided in accordance with the California Mechanical Code and Section 1206.6.1.1 or 1206.6.1.2.~~

1207.6.1 Exhaust ventilation. Where required by Table 1207.6 or elsewhere in this code, exhaust ventilation of rooms, areas, and walk-in units containing electrochemical ESS shall be provided in accordance with the California Mechanical Code and Section 1207.6.1.1 or 1207.6.1.2.

Item 12-69

Chapter 12, Energy Systems

[The SFM proposes to repeal California amendments and replace with model code language.]

~~1206.6.1.1 Ventilation based upon LFL. The exhaust ventilation system shall be designed to limit the maximum concentration of flammable gas to 25 percent of the lower flammable limit (LFL) of the total volume of the room, area, or walk-in unit during the worst-case event of simultaneous charging of batteries at the maximum charge rate, in accordance with nationally recognized standards.~~

1207.6.1.1 Ventilation based upon LFL. The exhaust ventilation system shall be designed to limit the maximum concentration of flammable gas to 25 percent of the lower flammable limit (LFL) of the total volume of the room, area, or walk-in unit during the worst-case event of simultaneous charging of batteries at the maximum charge rate, in accordance with nationally recognized standards.

Item 12-70

Chapter 12, Energy Systems

[The SFM proposes to repeal California amendments and replace with model code language.]

~~1206.6.1.2 Ventilation based upon exhaust rate. Mechanical exhaust~~

~~ventilation shall be provided at a rate of not less than 1 cu. ft. /min/ft. (5.1 L/sec/m) of floor area of the room, area, or walk-in unit. The ventilation shall be either continuous or shall be activated by a gas detection system in accordance with Section 1206.6.1.2.4.~~

1207.6.1.2 Ventilation based on exhaust rate. Mechanical exhaust ventilation shall be provided at a rate of not less than 1 ft³/min/ft² (5.1 L/sec/m²) of floor area of the room, area or walk-in unit. The ventilation shall be either continuous or shall be activated by a gas detection system in accordance with Section 1207.6.1.2.4.

Item 12-71

Chapter 12, Energy Systems

[The SFM proposes to repeal California amendments and replace with model code language.]

~~1206.6.1.2.1 Standby power. Mechanical exhaust ventilation shall be provided with a minimum of 2 hours of standby power in accordance with Section 1203.2.19.~~

1207.6.1.2.1 Standby power. Mechanical exhaust ventilation shall be provided with a minimum of 2 hours of standby power in accordance with Section 1203.2.5.

Item 12-72

Chapter 12, Energy Systems

[The SFM proposes to repeal California amendments and replace with model code language.]

~~1206.6.1.2.2 Installation instructions. Required mechanical exhaust ventilation systems shall be installed in accordance with the manufacturer's installation instructions and the California Mechanical Code.~~

1207.6.1.2.2 Installation instructions. Required mechanical exhaust ventilation systems shall be installed in accordance with the manufacturer's installation instructions and the California Mechanical Code.

Item 12-73

Chapter 12, Energy Systems

[The SFM proposes to repeal California amendments and replace with model code language.]

~~1206.6.1.2.3 Supervision. Required mechanical exhaust ventilation systems shall be supervised by an approved central station, proprietary or remote station service in accordance with NFPA 72, or shall initiate an audible and visible signal at an approved constantly attended on-site location.~~

1207.6.1.2.3 Supervision. Required mechanical exhaust ventilation systems shall be supervised by an approved central station, proprietary or remote station service in accordance with NFPA 72, or shall initiate an audible and visible signal at an approved constantly attended on-site location.

Item 12-74

Chapter 12, Energy Systems

[The SFM proposes to repeal California amendments and replace with model code language.]

~~1206.6.1.2.4 Gas detection system. Where required by Section 1206.6.1.2, rooms, areas, and walk-in units containing ESS shall be protected by an approved continuous gas detection system that complies with Section 916 and with the following:~~

- ~~1. The gas detection system shall be designed to activate the mechanical ventilation system when the level of flammable gas in the room, area, or walk-in unit exceeds 25 percent of the LFL.~~
- ~~2. The mechanical ventilation system shall remain on until the flammable gas detected is less than 25 percent of the LFL.~~
- ~~3. The gas detection system shall be provided with a minimum of 2 hours of standby power in accordance with Section 1203.2.6.~~
- ~~4. Failure of the gas detection system shall annunciate a trouble signal at an approved central station, proprietary or remote station service in accordance with NFPA 72, or shall initiate an audible and visible trouble signal at an approved constantly attended on-site location.~~

1207.6.1.2.4 Gas detection system. Where required by Section 1207.6.1.2, rooms, areas, and walk-in units containing ESS shall be protected by an approved continuous gas detection system that complies with Section 916 and with the following:

1. The gas detection system shall be designed to activate

the mechanical ventilation system when the level of flammable gas in the room, area, or walk-in unit exceeds 25 percent of the LFL.

2. The mechanical ventilation system shall remain on until the flammable gas detected is less than 25 percent of the LFL.

3. The gas detection system shall be provided with a minimum of 2 hours of standby power in accordance with Section 1203.2.5.

4. Failure of the gas detection system shall annunciate a trouble signal at an approved central station, proprietary or remote station service in accordance with NFPA 72, or shall initiate an audible and visible trouble signal at an approved constantly attended on-site location.

Item 12-75

Chapter 12, Energy Systems

[The SFM proposes to repeal California amendments and replace with model code language.]

~~1206.6.2 Spill control and neutralization. Where required by Table 1206.6 or elsewhere in this code, areas containing free-flowing liquid electrolyte or hazardous materials shall be provided with spill control and neutralization in accordance with this section.~~

1207.6.2 Spill control and neutralization. Where required by Table 1207.6 or elsewhere in this code, areas containing free-flowing liquid electrolyte or hazardous materials shall be provided with spill control and neutralization in accordance with this section.

Item 12-76

Chapter 12, Energy Systems

[The SFM proposes to repeal California amendments and replace with model code language.]

~~1206.6.2.2 Neutralization. An approved method to neutralize spilled liquid electrolyte shall be provided that is capable of neutralizing a spill from the largest battery or vessel to a pH between 5.0 and 9.0.~~

1207.6.2.2 Neutralization. An approved method to neutralize spilled liquid electrolyte shall be provided that is capable of neutralizing a spill from the largest battery or vessel to a pH between 5.0 and 9.0.

Item 12-77

Chapter 12, Energy Systems

[The SFM proposes to repeal California amendments and replace with model code language.]

~~1206.6.2.3 Spill control and neutralization for Communication Utilities. The requirements of Section 1206.6.2 – 1206.6.2.2 shall only apply when the aggregate capacity of multiple vessels exceeds 1,000 gallons (3785 L) for lead-acid and nickel-cadmium battery systems operating at less than 50 VAC and 60 VDC at facilities under the exclusive control of communications utilities and those facilities that comply with NFPA 76 in addition to applicable requirements of this code.~~

1207.6.2.3 Spill control and neutralization for Communication Utilities. The requirements of Section 1207.6.2 shall apply only when the aggregate capacity of multiple vessels exceeds 1,000 gallons (3785 L) for lead-acid and nickel-cadmium battery systems operating at less than 50 VAC and 60 VDC at facilities under the exclusive control of communications utilities and those facilities that comply with NFPA 76 in addition to applicable requirements of this code.

Item 12-78

Chapter 12, Energy Systems

[The SFM proposes to repeal California amendments and replace with model code language.]

~~1206.6.3 Explosion control. Where required by Table 1206.6 or elsewhere in this code, explosion control complying with Section 911 shall be provided for rooms, areas or walk-in units containing electrochemical ESS technologies.~~

~~Exceptions:~~

~~1. Where approved, explosion control is permitted to be waived by the fire code official based on large-scale fire testing complying with Section 1206.1.5 which demonstrates that flammable gases are not liberated from electrochemical ESS cells or modules where tested in accordance with UL 9540A.~~

~~2. Where approved, explosion control is permitted to be waived by the fire code official based on documentation provided in accordance with Section 104.7 that demonstrates that the electrochemical ESS technology to be used does not have the potential to release flammable gas concentrations in excess of 25 percent of the LFL anywhere in the room, area, walk-in unit or~~

structure under thermal runaway or other fault conditions.

1207.6.3 Explosion control. Where required by Table 1207.6 or elsewhere in this code, explosion control complying with Section 911 shall be provided for rooms, areas or walk-in units containing electrochemical ESS technologies.

Exceptions:

1. Where approved, explosion control is permitted to be waived by the fire code official based on large-scale fire testing complying with Section 1207.1.5 which demonstrates that flammable gases are not liberated from electrochemical ESS cells or modules where tested in accordance with UL 9540A.

2. Where approved, explosion control is permitted to be waived by the fire code official based on documentation provided in accordance with Section 104.7 that demonstrates that the electrochemical ESS technology to be used does not have the potential to release flammable gas concentrations in excess of 25 percent of the LFL anywhere in the room, area, walk-in unit or structure under thermal runaway or other fault conditions.

Item 12-79

Chapter 12, Energy Systems

[The SFM proposes to repeal California amendments and replace with model code language.]

~~1206.6.4 Safety caps. Where required by Table 1206.6 or elsewhere in this code, vented batteries and other ESS shall be provided with flame-arresting safety caps.~~

1207.6.4 Safety caps. Where required by Table 1207.6 or elsewhere in this code, vented batteries and other ESS shall be provided with flame-arresting safety caps.

Item 12-80

Chapter 12, Energy Systems

[The SFM proposes to repeal California amendments and replace with model code language.]

~~1206.6.5 Thermal runaway. Where required by Table 1206.6 or elsewhere in this code, batteries and other ESS shall be provided with a listed device or other approved method to prevent, detect and minimize the impact of thermal runaway.~~

1207.6.5 Thermal runaway. Where required by Table 1207.6 or elsewhere in this code, batteries and other ESS shall be provided with a listed device or other approved method to prevent, detect and minimize the impact of thermal runaway.

Item 12-81

Chapter 12, Energy Systems

[The SFM proposes to repeal California amendments and replace with model code language.]

~~1206.7 Indoor installations. Indoor ESS installations shall be in accordance with Sections 1206.7.1 through 1206.7.4.~~

1207.7 Indoor installations. Indoor ESS installations shall be in accordance with Sections 1207.7.1 through 1207.7.4.

Item 12-82

Chapter 12, Energy Systems

[The SFM proposes to repeal California amendments and replace with model code language.]

~~TABLE 1206.7
INDOOR ESS INSTALLATIONS~~

| COMPLIANCE REQUIRED | DEDICATED-USE BUILDINGS^a | NON-DEDICATED USE-BUILDINGS^b |
|--|--|--|
| 1206.4 General installation requirements | Yes | Yes |
| 1206.5.1 Size and separation | Yes | Yes |
| 1206.5.2 Maximum allowable quantities | No | Yes |
| 1206.5.3 Elevation | Yes | Yes |
| 1206.5.4 Smoke and automatic fire detection | Yes^{c, e} | Yes |
| 1206.5.5 Fire suppression systems | Yes^d | Yes |
| 1206.6 Technology specific protection | Yes | Yes |
| 1206.7.3 Dwelling units and sleeping units | NA | Yes |
| 1206.7.4 Fire-resistance-rated separations | Yes | Yes |

~~NA = Not allowed.~~

~~a. See Section 1206.7.1.~~

~~b. See Section 1206.7.2.~~

~~c. Where approved by the fire code official, alarm signals are not required to be transmitted to a central station, proprietary or remote station service in accordance with NFPA 72, or a constantly attended location where local fire alarm annunciation is provided and trained personnel are always present.~~

~~d. Where approved by the fire code official, fire suppression systems are permitted to be omitted in dedicated use buildings located more than 100 feet (30.5 M) from buildings, lot lines, public ways, stored combustible materials, hazardous materials, high-piled stock and other exposure hazards.~~

~~e. Lead-acid and nickel-cadmium battery systems installed in Group U buildings and structures less than 1500 ft. (140 m) under the exclusive control of communications utilities, and operating at less than 50 VAC and 60 VDC in accordance with NFPA 76 are not required to have an approved automatic smoke or fire detection system.~~

TABLE 1207.7
INDOOR ESS INSTALLATIONS

| <u>COMPLIANCE REQUIRED</u> | <u>DEDICATED-USE BUILDINGS ^a</u> | <u>NON-DEDICATED USE-BUILDINGS ^b</u> |
|--|---|---|
| <u>1207.4 General installation requirements</u> | <u>Yes</u> | <u>Yes</u> |
| <u>1207.5.1 Size and separation</u> | <u>Yes</u> | <u>Yes</u> |
| <u>1207.5.2 Maximum allowable quantities</u> | <u>No</u> | <u>Yes</u> |
| <u>1207.5.3 Elevation</u> | <u>Yes</u> | <u>Yes</u> |
| <u>1207.5.4 Smoke and automatic fire detection</u> | <u>Yes ^{c, e}</u> | <u>Yes</u> |
| <u>1207.5.5 Fire suppression systems</u> | <u>Yes ^d</u> | <u>Yes</u> |
| <u>1207.6 Technology specific protection</u> | <u>Yes</u> | <u>Yes</u> |
| <u>1207.7.3 Dwelling units and sleeping units</u> | <u>NA</u> | <u>Yes</u> |
| <u>1207.7.4 Fire-resistance-rated separations</u> | <u>Yes</u> | <u>Yes</u> |

NA = Not allowed.

a. See Section 1207.7.1.

b. See Section 1207.7.2.

c. Where approved by the fire code official, alarm signals are not required to be transmitted to a central station, proprietary or remote station service in accordance with NFPA 72, or a constantly attended location where local fire alarm annunciation is provided and trained personnel are always present.

d. Where approved by the fire code official, fire suppression systems are permitted to be omitted in dedicated use buildings located more than 100 feet (30.5 m) from buildings,

lot lines, public ways, stored combustible materials, hazardous materials, high-piled stock and other exposure hazards.

e. Lead-acid and nickel-cadmium battery systems installed in Group U buildings and structures less than 1,500 square feet (139 m²) under the exclusive control of communications utilities, and operating at less than 50 VAC and 60 VDC in accordance with NFPA 76 are not required to have an approved automatic smoke or fire detection system.

Item 12-83

Chapter 12, Energy Systems

[The SFM proposes to repeal California amendments and replace with model code language.]

~~1206.7.1 Dedicated-use buildings. For the purpose of Table 1206.7, dedicated-use ESS buildings shall be classified as Group F-1 occupancies and comply with all the following:~~

~~1. The building shall only be used for ESS, electrical energy generation, and other electrical grid related operations.~~

~~2. Occupants in the rooms and areas containing ESS are limited to personnel that operate, maintain, service, test and repair the ESS and other energy systems.~~

~~3. No other occupancy types shall be permitted in the building.~~

~~4. Administrative and support personnel shall be permitted in areas within the buildings that do not contain ESS, provided:~~

~~4.1 The areas do not occupy more than 10 percent of the building area of the story in which they are located.~~

~~4.2 A means of egress is provided from the incidental use areas to the public way that does not require occupants to traverse through areas containing ESS or other energy system equipment.~~

1207.7.1 Dedicated-use buildings. For the purpose of Table 1207.7, dedicated-use ESS buildings shall be classified as Group F-1 occupancies and comply with all the following:

1. The building shall only be used for ESS, electrical energy generation, and other electrical grid related operations.

2. Occupants in the rooms and areas containing ESS are limited to personnel that operate, maintain, service, test and repair the ESS and other energy systems.

3. No other occupancy types shall be permitted in the building.

4. Administrative and support personnel shall be permitted in areas within the buildings that do not contain ESS, provided:

4.1 The areas do not occupy more than 10 percent of the building area of the story in which they are located.

4.2 A means of egress is provided from the incidental use areas to the public way that does not require occupants to traverse through areas containing ESS or other energy system equipment.

Item 12-84

Chapter 12, Energy Systems

[The SFM proposes to repeal California amendments and replace with model code language.]

~~1206.7.2 Non-dedicated-use buildings. For the purpose of Table 1206.7, non-dedicated-use buildings include all buildings that contain ESS and do not comply with Section 1206.7.2 dedicated-use building requirements.~~

1207.7.2 Non-dedicated-use buildings. For the purpose of Table 1207.7, non-dedicated-use buildings include all buildings that contain ESS and do not comply with Section 1207.7.2 dedicated-use building requirements.

Item 12-85

Chapter 12, Energy Systems

[The SFM proposes to repeal California amendments and replace with model code language.]

~~1206.7.3 Dwelling units and sleeping units. ESS shall not be installed in sleeping rooms, closets, spaces opening directly into sleeping rooms or in habitable spaces of dwelling units.~~

1207.7.3 Dwelling units and sleeping units. ESS shall not be installed in sleeping rooms, closets, spaces opening directly into sleeping rooms or in habitable spaces of dwelling units.

Item 12-86

Chapter 12, Energy Systems

[The SFM proposes to repeal California amendments and replace with model code language.]

~~1206.7.4 Fire-resistance rated separations. Rooms and areas containing ESS shall include fire-resistance rated separations as follows:~~

- ~~1. In dedicated-use buildings, rooms and areas containing ESS shall be separated from areas in which administrative and support personnel are located.~~
- ~~2. In non-dedicated-use buildings, rooms and areas containing ESS shall be separated from other areas in the building.~~

~~Separation shall be provided by 2 hour rated fire barriers constructed in accordance with Section 707 of the California Building Code and 2 hour rated horizontal assemblies constructed in accordance with Section 711 of the California Building Code, as appropriate.~~

1207.7.4 Fire-resistance rated separations. Rooms and areas containing ESS shall include fire-resistance rated separations as follows:

1. In dedicated-use buildings, rooms and areas containing ESS shall be separated from areas in which administrative and support personnel are located.
2. In non-dedicated-use buildings, rooms and areas containing ESS shall be separated from other areas in the building.

Separation shall be provided by 2 hour rated fire barriers constructed in accordance with Section 707 of the California Building Code and 2 hour rated horizontal assemblies constructed in accordance with Section 711 of the California Building Code, as appropriate.

Item 12-87

Chapter 12, Energy Systems

[The SFM proposes to repeal California amendments and replace with model code language.]

~~1206.8 Outdoor installations. Outdoor installations shall be in accordance with Sections 1206.8.1 through 1206.8.3. Exterior wall installations for individual ESS units not exceeding 20 KWh shall be in accordance with Section 1206.8.4.~~

1207.8 Outdoor installations. Outdoor installations shall be in accordance with Sections 1207.8.1 through 1207.8.3. Exterior wall installations for individual ESS units not exceeding 20 kWh shall be in accordance with Section 1207.8.4.

Item 12-88

Chapter 12, Energy Systems

[The SFM proposes to repeal California amendments and replace with model code language.]

~~TABLE 1206.8~~
~~OUTDOOR ESS INSTALLATIONS~~

| COMPLIANCE REQUIRED | REMOTE INSTALLATIONS^a | INSTALLATIONS NEAR EXPOSURES^b |
|--|---|---|
| 1206.4 All ESS installations | Yes | Yes |
| 1206.5.1 Size and separation | No | Yes^c |
| 1206.5.2 Maximum allowable quantities | No | Yes |
| 1206.5.4 Smoke and automatic fire detection | Yes | Yes |
| 1206.5.5 Fire suppression systems | Yes^d | Yes |
| 1206.5.6 Maximum enclosure size | Yes | Yes |
| 1206.5.7 Vegetation control | Yes | Yes |
| 1206.5.8 Means of egress separation | Yes | Yes |
| 1206.6 Technology specific protection | Yes | Yes |
| 1206.8.3 Clearance to exposures | Yes | Yes |

~~a. See Section 1206.8.1.~~

~~b. See Section 1206.8.2.~~

~~c. In outdoor walk-in units, spacing is not required between ESS units and the walls of the enclosure.~~

~~d. Where approved by the fire code official, fire suppression systems are permitted to be omitted.~~

TABLE 1207.8
OUTDOOR ESS INSTALLATIONS

| <u>COMPLIANCE REQUIRED</u> | <u>REMOTE INSTALLATIONS^a</u> | <u>INSTALLATIONS NEAR EXPOSURES^b</u> |
|--|---|---|
| <u>1207.4 All ESS installations</u> | <u>Yes</u> | <u>Yes</u> |
| <u>1207.5.1 Size and separation</u> | <u>No</u> | <u>Yes^c</u> |
| <u>1207.5.2 Maximum allowable quantities</u> | <u>No</u> | <u>Yes</u> |
| <u>1207.5.4 Smoke and automatic fire detection</u> | <u>Yes</u> | <u>Yes</u> |
| <u>1207.5.5 Fire suppression systems</u> | <u>Yes^d</u> | <u>Yes</u> |
| <u>1207.5.6 Maximum enclosure size</u> | <u>Yes</u> | <u>Yes</u> |

| <u>COMPLIANCE REQUIRED</u> | <u>REMOTE INSTALLATIONS</u> ^a | <u>INSTALLATIONS NEAR EXPOSURES</u> ^b |
|--|--|--|
| <u>1207.5.7 Vegetation control</u> | <u>Yes</u> | <u>Yes</u> |
| <u>1207.5.8 Means of egress separation</u> | <u>Yes</u> | <u>Yes</u> |
| <u>1207.6 Technology specific protection</u> | <u>Yes</u> | <u>Yes</u> |
| <u>1207.8.3 Clearance to exposures</u> | <u>Yes</u> | <u>Yes</u> |

a. See Section 1207.8.1.

b. See Section 1207.8.2.

c. In outdoor walk-in units, spacing is not required between ESS units and the walls of the enclosure.

d. Where approved by the fire code official, fire suppression systems are permitted to be omitted.

Item 12-1

Chapter 12, Energy Systems

[The SFM proposes to repeal California amendments and replace with model code language.]

~~1206.8.1 Remote outdoor installations. For the purpose of Table 1206.8, remote outdoor installations include ESS located more than 100 feet (30.5 M) from buildings, lot lines, public ways, stored combustible materials, hazardous materials, high-piled stock and other exposure hazards.~~

1207.8.1 Remote outdoor installations. For the purpose of Table 1207.8, remote outdoor installations include ESS located more than 100 feet (30.5 m) from buildings, lot lines, public ways, stored combustible materials, hazardous materials, high-piled stock and other exposure hazards.

Item 12-89

Chapter 12, Energy Systems

[The SFM proposes to repeal California amendments and replace with model code language.]

~~1206.8.2 Installations near exposures. For the purpose of Table 1206.8, installations near exposures include all outdoor ESS installations that do not comply with Section 1206.8.1 remote outdoor location requirements.~~

1207.8.2 Installations near exposures. For the purpose of Table 1207.8, installations near exposures include all outdoor ESS installations that do not comply with Section 1207.8.1 remote outdoor location requirements.

Item 12-90

Chapter 12, Energy Systems

[The SFM proposes to repeal California amendments and replace with model code language.]

~~1206.8.3 Clearance to exposures. ESS located outdoors shall be separated by a minimum ten feet (3048 mm) from the following exposures:~~

- ~~1. Lot lines~~
- ~~2. Public ways~~
- ~~3. Buildings~~
- ~~4. Stored combustible materials~~
- ~~5. Hazardous materials~~
- ~~6. High-piled stock~~
- ~~7. Other exposure hazards~~

~~Exceptions:~~

- ~~1. Clearances are permitted to be reduced to 3 feet (914 mm) where a 1 hour free standing fire barrier, suitable for exterior use, and extending 5 feet (1.5 m) above and extending 5 feet (1.5 m) beyond the physical boundary of the ESS installation is provided to protect the exposure.~~
- ~~2. Clearances to buildings are permitted to be reduced to 3 feet (914 mm) where noncombustible exterior walls with no openings or combustible overhangs are provided on the wall adjacent to the ESS and the fire-resistance rating of the exterior wall is a minimum of 2 hours.~~
- ~~3. Clearances to buildings are permitted to be reduced to 3 feet (914.4 mm) where a weatherproof enclosure constructed of noncombustible materials is provided over the ESS, and it has been demonstrated that a fire within the enclosure will not ignite combustible materials outside the enclosure based on large-scale fire testing complying with Section 1206.1.5.~~

1207.8.3 Clearance to exposures. ESS located outdoors shall be separated by a minimum ten feet (3048 mm) from the following exposures:

1. Lot lines
2. Public ways

3. Buildings

4. Stored combustible materials

5. Hazardous materials

6. High-piled stock

7. Other exposure hazards

Exceptions:

1. Clearances are permitted to be reduced to 3 feet (914 mm) where a 1 hour free standing fire barrier, suitable for exterior use, and extending 5 feet (1.5 m) above and extending 5 feet (1.5 m) beyond the physical boundary of the ESS installation is provided to protect the exposure.

2. Clearances to buildings are permitted to be reduced to 3 feet (914 mm) where noncombustible exterior walls with no openings or combustible overhangs are provided on the wall adjacent to the ESS and the fire-resistance rating of the exterior wall is a minimum of 2 hours.

3. Clearances to buildings are permitted to be reduced to 3 feet (914.4 mm) where a weatherproof enclosure constructed of noncombustible materials is provided over the ESS, and it has been demonstrated that a fire within the enclosure will not ignite combustible materials outside the enclosure based on large-scale fire testing complying with Section 1207.1.5.

Item 12-91

Chapter 12, Energy Systems

[The SFM proposes to repeal California amendments and replace with model code language.]

~~1206.8.4 Exterior wall installations. ESS shall be permitted to be installed outdoors on exterior walls of buildings when all the following conditions are met:~~

- ~~1. The maximum energy capacity of individual ESS units shall not exceed 20 kWh.~~
- ~~2. The ESS shall comply with applicable requirements in Section 1206.~~
- ~~3. The ESS shall be installed in accordance with the manufacturer's instructions and their listing.~~
- ~~4. Individual ESS units shall be separated from each other by at least 3 feet (914 mm).~~

~~5. The ESS shall be separated from doors, windows, operable openings into buildings, or HVAC inlets by at least 5 feet (1524 mm).~~

~~Exception: Where approved, smaller separation distances in items 4 and 5 shall be permitted based on large-scale fire testing complying with Section 1206.1.5.~~

12077.8.4 Exterior wall installations. ESS shall be permitted to be installed outdoors on exterior walls of buildings when all the following conditions are met:

1. The maximum energy capacity of individual ESS units shall not exceed 20 kWh.
2. The ESS shall comply with applicable requirements in Section 1207.
3. The ESS shall be installed in accordance with the manufacturer's instructions and their listing.
4. Individual ESS units shall be separated from each other by at least 3 feet (914 mm).
5. The ESS shall be separated from doors, windows, operable openings into buildings, or HVAC inlets by at least 5 feet (1524 mm).

Exception: Where approved, smaller separation distances in items 4 and 5 shall be permitted based on large-scale fire testing complying with Section 1207.1.5.

Item 12-92

Chapter 12, Energy Systems

[The SFM proposes to repeal California amendments and replace with model code language.]

~~1206.9 Special installations. Rooftop and open parking garage ESS installations shall comply with Sections 1206.9.1 through 1206.9.6.~~

1207.9 Special installations. Rooftop and open parking garage ESS installations shall comply with Sections 1207.9.1 through 1207.9.6.

Item 12-93

Chapter 12, Energy Systems

[The SFM proposes to repeal California amendments and replace with model code language.]

**TABLE 1206.9
SPECIAL ESS INSTALLATIONS**

| COMPLIANCE REQUIRED | ROOFTOPS^a | OPEN PARKING GARAGES^b |
|--|-----------------------------|---|
| 1206.4 All ESS installations | Yes | Yes |
| 1206.5.1 Size and separation | Yes | Yes |
| 1206.5.2 Maximum allowable quantities | Yes | Yes |
| 1206.5.4 Smoke and automatic fire detection | Yes | Yes |
| 1206.5.6 Maximum enclosure size | Yes | Yes |
| 1206.5.8 Means of egress separation | Yes | Yes |
| 1206.9.3 Clearance to exposures | Yes | Yes |
| 1206.6 Technology specific protection | Yes | Yes |
| 1206.9.4 Fire suppression systems | Yes | Yes |
| 1206.9.5 Rooftop installations | Yes | No |
| 1206.9.6 Open parking garage installations | No | Yes |

~~a. See Section 1206.9.1.~~

~~b. See Section 1206.9.2.~~

**TABLE 1207.9
SPECIAL ESS INSTALLATIONS**

| COMPLIANCE REQUIRED | ROOFTOPS^a | OPEN PARKING GARAGES^b |
|--|-----------------------------|---|
| <u>1207.4 All ESS installations</u> | <u>Yes</u> | <u>Yes</u> |
| <u>1207.5.1 Size and separation</u> | <u>Yes</u> | <u>Yes</u> |
| <u>1207.5.2 Maximum allowable quantities</u> | <u>Yes</u> | <u>Yes</u> |
| <u>1207.5.4 Smoke and automatic fire detection</u> | <u>Yes</u> | <u>Yes</u> |
| <u>1207.5.6 Maximum enclosure size</u> | <u>Yes</u> | <u>Yes</u> |
| <u>1207.5.8 Means of egress separation</u> | <u>Yes</u> | <u>Yes</u> |
| <u>1207.9.3 Clearance to exposures</u> | <u>Yes</u> | <u>Yes</u> |
| <u>1207.6 Technology specific protection</u> | <u>Yes</u> | <u>Yes</u> |
| <u>1207.9.4 Fire suppression systems</u> | <u>Yes</u> | <u>Yes</u> |
| <u>1207.9.5 Rooftop installations</u> | <u>Yes</u> | <u>No</u> |
| <u>1207.9.6 Open parking garage installations</u> | <u>No</u> | <u>Yes</u> |

a. See Section 1207.9.1.

b. See Section 1207.9.2.

Item 12-94

Chapter 12, Energy Systems

[The SFM proposes to repeal California amendments and replace with model code language.]

~~1206.9.1 Rooftop installations. For the purpose of Table 1206.9, rooftop ESS installations are those located on the roofs of buildings.~~

1207.9.1 Rooftop installations. For the purpose of Table 1207.9, rooftop ESS installations are those located on the roofs of buildings.

Item 12-95

Chapter 12, Energy Systems

[The SFM proposes to repeal California amendments and replace with model code language.]

~~1206.9.2 Open parking garage installations. For the purpose of Table 1206.9, open parking garage ESS installations are those located in a structure or portion of a structure that complies with Section 406.5 of the California Building Code.~~

1207.9.2 Open parking garage installations. For the purpose of Table 1207.9, open parking garage ESS installations are those located in a structure or portion of a structure that complies with Section 406.5 of the California Building Code.

Item 12-96

Chapter 12, Energy Systems

[The SFM proposes to repeal California amendments and replace with model code language.]

~~1206.9.3 Clearance to exposures. ESS located on rooftops and in open parking garages shall be separated by a minimum ten feet (3048 mm) from the following exposures:~~

- ~~1. Buildings, except the building on which rooftop ESS is mounted~~
- ~~2. Any portion of the building on which a rooftop system is mounted that is elevated above the rooftop on which the system is installed~~
- ~~3. Lot lines~~
- ~~4. Public ways~~
- ~~5. Stored combustible materials~~

~~6. Locations where motor vehicles can be parked~~

~~7. Hazardous materials~~

~~8. Other exposure hazards~~

~~Exceptions:~~

~~1. Clearances are permitted to be reduced to 3 feet (914 mm) where a 1 hour free standing fire barrier, suitable for exterior use, and extending 5 feet (1.5 m) above and extending 5 feet (1.5 m) beyond the physical boundary of the ESS installation is provided to protect the exposure.~~

~~2. Clearances are permitted to be reduced to 3 feet (914.4 mm) where a weatherproof enclosure constructed of noncombustible materials is provided over the ESS and it has been demonstrated that a fire within the enclosure will not ignite combustible materials outside the enclosure based on large-scale fire testing complying with Section 1206.1.5.~~

1207.9.3 Clearance to exposures. ESS located on rooftops and in open parking garages shall be separated by a minimum ten feet (3048 mm) from the following exposures:

1. Buildings, except the building on which rooftop ESS is mounted

2. Any portion of the building on which a rooftop system is mounted that is elevated above the rooftop on which the system is installed

3. Lot lines

4. Public ways

5. Stored combustible materials

6. Locations where motor vehicles can be parked

7. Hazardous materials

8. Other exposure hazards

Exceptions:

1. Clearances are permitted to be reduced to 3 feet (914 mm) where a 1 hour free standing fire barrier, suitable for exterior use, and extending 5 feet (1.5 m) above and extending 5 feet (1.5 m) beyond the physical boundary of the ESS installation is provided to protect the exposure.

2. Clearances are permitted to be reduced to 3 feet (914.4 mm) where a

weatherproof enclosure constructed of noncombustible materials is provided over the ESS and it has been demonstrated that a fire within the enclosure will not ignite combustible materials outside the enclosure based on large-scale fire testing complying with Section 1207.1.5.

Item 12-97

Chapter 12, Energy Systems

[The SFM proposes to repeal California amendments and replace with model code language.]

~~1206.9.4 Fire suppression systems. ESS located in walk-in units on rooftops or in walk-in units in open parking garages shall be provided with automatic fire suppression systems within the ESS enclosure in accordance with Section 1206.5.5. Areas containing ESS other than walk-in units in open parking structures on levels not open above to the sky shall be provided with an automatic fire suppression system complying with Section 1206.5.5.~~

~~Exception: A fire suppression system is not required in open parking garages if large-scale fire testing complying with Section 1206.1.5 is provided that shows that a fire will not impact the exposures in Section 1206.9.3.~~

1207.9.4 Fire suppression systems. ESS located in walk-in units on rooftops or in walk-in units in open parking garages shall be provided with automatic fire suppression systems within the ESS enclosure in accordance with Section 1207.5.5. Areas containing ESS other than walk-in units in open parking structures on levels not open above to the sky shall be provided with an automatic fire suppression system complying with Section 1207.5.5.

Exception: A fire suppression system is not required in open parking garages if large-scale fire testing complying with Section 1207.1.5 is provided that shows that a fire will not impact the exposures in Section 1207.9.3.

Item 12-98

Chapter 12, Energy Systems

[The SFM proposes to repeal California amendments and replace with model code language.]

~~1206.9.5 Rooftop installations. ESS and associated equipment that are located on rooftops and not enclosed by building construction shall comply with the following:~~

- ~~1. Stairway access to the roof for emergency response and fire~~

~~department personnel shall be provided either through a bulkhead from the interior of the building or a stairway on the exterior of the building.~~

~~2. Service walkways at least 5 feet (1524 mm) in width shall be provided for service and emergency personnel from the point of access to the roof, to the system itself.~~

~~3. ESS and associated equipment shall be located from the edge of the roof a distance equal to at least the height of the system, equipment, or component but not less than 5 feet (1.5 m).~~

~~4. The roofing materials under and within 5 feet (1524 mm) horizontally from an ESS or associated equipment shall be noncombustible or shall have a Class A rating when tested in accordance with ASTM E108 or UL 790.~~

~~5. A Class I standpipe outlet shall be installed at an approved location on the roof level of the building or in the stairway bulkhead at the top level.~~

~~6. The ESS shall be the minimum of 10 feet from the fire service access point on the roof top.~~

1207.9.5 Rooftop installations. ESS and associated equipment that are located on rooftops and not enclosed by building construction shall comply with the following:

1. Stairway access to the roof for emergency response and fire department personnel shall be provided either through a bulkhead from the interior of the building or a stairway on the exterior of the building.

2. Service walkways at least 5 feet (1524 mm) in width shall be provided for service and emergency personnel from the point of access to the roof, to the system itself.

3. ESS and associated equipment shall be located from the edge of the roof a distance equal to at least the height of the system, equipment, or component but not less than 5 feet (1.5 m).

4. The roofing materials under and within 5 feet (1524 mm) horizontally from an ESS or associated equipment shall be noncombustible or shall have a Class A rating when tested in accordance with ASTM E108 or UL 790.

5. A Class I standpipe outlet shall be installed at an approved location on the roof level of the building or in the stairway bulkhead at the top level.

6. The ESS shall be the minimum of 10 feet from the fire service access point on the roof top.

Item 12-99

Chapter 12, Energy Systems

[The SFM proposes to repeal California amendments and replace with model code language.]

~~1206.9.6 Open parking garages. ESS and associated equipment that are located in open parking garages shall comply with all the following:~~

~~1. ESS shall not be located within 50 feet (15,240 mm) of air inlets for building HVAC systems.~~

~~Exception: This distance shall be permitted to be reduced to 25 feet (7.620 mm) if the automatic fire alarm system monitoring the radiant-energy sensing detectors de-energizes the ventilation system connected to the air intakes upon detection of fire.~~

~~2. ESS shall not be located within 25 feet (7620 mm) of exits leading from the attached building where located on a covered level of the parking structure not directly open to the sky above.~~

~~3. An approved fence with a locked gate or other approved barrier shall be provided to keep the general public at least 5 feet (1524 mm) from the outer enclosure of the ESS.~~

1207.9.6 Open parking garages. ESS and associated equipment that are located in open parking garages shall comply with all the following:

1. ESS shall not be located within 50 feet (15,240 mm) of air inlets for building HVAC systems.

Exception: This distance shall be permitted to be reduced to 25 feet (7.620 mm) if the automatic fire alarm system monitoring the radiant-energy sensing detectors de-energizes the ventilation system connected to the air intakes upon detection of fire.

2. ESS shall not be located within 25 feet (7620 mm) of exits leading from the attached building where located on a covered level of the parking structure not directly open to the sky above.

3. An approved fence with a locked gate or other approved barrier shall be provided to keep the general public at least 5 feet (1524 mm) from the outer enclosure of the ESS.

Item 12-100

Chapter 12, Energy Systems

[The SFM proposes to repeal California amendments and replace with model code language.]

~~1206.10 Mobile ESS equipment and operations. Mobile ESS equipment and operations shall comply with Sections 1206.10.1 through 1206.10.7.7~~

1207.10 Mobile ESS equipment and operations. Mobile ESS equipment and operations shall comply with Sections 1207.10.1 through 1207.10.7.7.

Item 12-101

Chapter 12, Energy Systems

[The SFM proposes to repeal California amendments and replace with model code language.]

~~TABLE 1206.10~~
~~MOBILE ENERGY STORAGE SYSTEMS (ESS)~~

| COMPLIANCE REQUIRED | COMPLIANCE REQUIRED^a |
|--|--|
| 1206.4 All ESS installations | Yes^b |
| 1206.5.1 Size and separation | Yes^c |
| 1206.5.2 Maximum allowable quantities | Yes |
| 1206.5.4 Smoke and automatic fire detection | Yes^e |
| 1206.5.5 Fire suppression systems | Yes^d |
| 1206.5.6 Maximum enclosure size | Yes |
| 1206.5.7 Vegetation control | Yes |
| 1206.5.8 Means of egress separation | Yes |
| 1206.6 Technology specific protection | Yes |

~~a. See Section 1206.10.2.~~

~~b. Mobile operations on wheeled vehicle or trailers shall not be required to comply with Section 1206.4.4 seismic and structural load requirements.~~

~~c. In walk-in units, spacing is not required between ESS units and the walls of the enclosure.~~

~~d. Fire suppression system connections to the water supply shall be permitted to use approved temporary connections.~~

~~e. Alarm signals are not required to be transmitted to an approved location for mobile ESS deployed 30 days or less.~~

TABLE 1207.10
MOBILE ENERGY STORAGE SYSTEMS (ESS)

| <u>COMPLIANCE REQUIRED</u> | <u>COMPLIANCE REQUIRED</u> ^a |
|--|---|
| <u>1207.4 All ESS installations</u> | <u>Yes</u> ^b |
| <u>1207.5.1 Size and separation</u> | <u>Yes</u> ^c |
| <u>1207.5.2 Maximum allowable quantities</u> | <u>Yes</u> |
| <u>1207.5.4 Smoke and automatic fire detection</u> | <u>Yes</u> ^e |
| <u>1207.5.5 Fire suppression systems</u> | <u>Yes</u> ^d |
| <u>1207.5.6 Maximum enclosure size</u> | <u>Yes</u> |
| <u>1207.5.7 Vegetation control</u> | <u>Yes</u> |
| <u>1207.5.8 Means of egress separation</u> | <u>Yes</u> |
| <u>1207.6 Technology specific protection</u> | <u>Yes</u> |

a. See Section 1207.10.2.

b. Mobile operations on wheeled vehicle or trailers shall not be required to comply with Section 1207.4.4 seismic and structural load requirements.

c. In walk-in units, spacing is not required between ESS units and the walls of the enclosure.

d. Fire suppression system connections to the water supply shall be permitted to use approved temporary connections.

e. Alarm signals are not required to be transmitted to an approved location for mobile ESS deployed 30 days or less.

Item 12-102

Chapter 12, Energy Systems

[The SFM proposes to repeal California amendments and replace with model code language.]

~~1206.10.1 Charging and storage. For the purpose of Section 1206.10, charging and storage covers the operation where mobile ESS are charged and stored so they are ready for deployment to another site, and where they are charged and stored after a deployment.~~

1207.10.1 Charging and storage. For the purpose of Section 1207.10, charging and storage covers the operation where mobile ESS are charged and stored so they are ready for deployment to another site, and where they are charged and stored after a deployment.

Item 12-103

Chapter 12, Energy Systems

[The SFM proposes to repeal California amendments and replace with model code language.]

~~1206.10.2 Deployment. For the purpose of Section 1206.10, deployment covers operations where mobile ESS are located at a site other than the charging and storage site and are being used to provide power.~~

1207.10.2 Deployment. For the purpose of Section 1207.10, deployment covers operations where mobile ESS are located at a site other than the charging and storage site and are being used to provide power.

Item 12-104

Chapter 12, Energy Systems

[The SFM proposes to repeal California amendments and replace with model code language.]

~~1206.10.3 Permits. Construction and operational permits shall be provided for charging and storage of mobile ESS and operational permits shall be provided for deployment of mobile ESS as required by Section 1206.1.2.~~

1207.10.3 Permits. Construction and operational permits shall be provided for charging and storage of mobile ESS and operational permits shall be provided for deployment of mobile ESS as required by Section 1207.1.2.

Item 12-105

Chapter 12, Energy Systems

[The SFM proposes to repeal California amendments and replace with model code language.]

~~1206.10.4 Construction documents. Construction documents complying with Section 1206.3 shall be provided with the construction permit application for mobile ESS charging and storage locations.~~

1207.10.4 Construction documents. Construction documents complying with Section 1207.1.3 shall be provided with the construction permit application for mobile ESS charging and storage locations.

Item 12-106

Chapter 12, Energy Systems

[The SFM proposes to repeal California amendments and replace with model code language.]

~~1206.10.4.1 Deployment documents. The following information shall be provided with the operation permit applications for mobile ESS deployments:~~

- ~~1. Relevant information for the mobile ESS equipment and protection measures in the construction documents required by Section 1206.1.3.~~
- ~~2. Location and layout diagram of the area in which the mobile ESS is to be deployed, including a scale diagram of all nearby exposures.~~
- ~~3. Location and content of signage, including no smoking signs.~~
- ~~4. Description of fencing to be provided around the ESS, including locking methods.~~
- ~~5. Details on fire suppression, smoke and automatic fire detection, system monitoring, thermal management, exhaust ventilation, and explosion control, if provided.~~
- ~~6. For deployment, the intended duration of operation, including anticipated connection and disconnection times and dates.~~
- ~~7. Location and description of local staging stops during transit to the deployment site. See Section 1206.10.8.5.~~
- ~~8. Description of the temporary wiring, including connection methods, conductor type and size, and circuit overcurrent protection to be provided.~~
- ~~9. Description of how fire suppression system connections to water supplies or extinguishing agents are to be provided.~~
- ~~10. Contact information for personnel who are responsible for maintaining and servicing the equipment, and responding to emergencies as required by Section 1206.1.6.1.~~

1207.10.4.1 Deployment documents. The following information shall be provided with the operation permit applications for mobile ESS deployments:

1. Relevant information for the mobile ESS equipment and protection measures in the construction documents required by Section 1207.1.3.

2. Location and layout diagram of the area in which the mobile ESS is to be deployed, including a scale diagram of all nearby exposures.
3. Location and content of signage, including no smoking signs.
4. Description of fencing to be provided around the ESS, including locking methods.
5. Details on fire suppression, smoke and automatic fire detection, system monitoring, thermal management, exhaust ventilation, and explosion control, if provided.
6. For deployment, the intended duration of operation, including anticipated connection and disconnection times and dates.
7. Location and description of local staging stops during transit to the deployment site. See Section 1207.10.8.5.
8. Description of the temporary wiring, including connection methods, conductor type and size, and circuit overcurrent protection to be provided.
9. Description of how fire suppression system connections to water supplies or extinguishing agents are to be provided.
10. Contact information for personnel who are responsible for maintaining and servicing the equipment, and responding to emergencies as required by Section 1207.1.6.1.

Item 12-107

Chapter 12, Energy Systems

[The SFM proposes to repeal California amendments and replace with model code language.]

1207.11.6 Fire detection. ESS installed in group R-3 and R-4 occupancies shall comply with the following:

1. Rooms and areas within dwellings units, sleeping units, basements and attached garages in which ESS are installed shall be protected by smoke alarms in accordance with Section 907.2.11 ~~907.2.10~~.
2. A listed heat alarm ~~heat detector listed and interconnected to the smoke alarms~~ shall be installed in locations ~~within dwelling units, sleeping units and attached garages~~ where smoke alarms cannot be installed based on their listing.

Item 12-108

Chapter 12, Energy Systems

[The SFM proposes to adopt amend Section 1207.11.7 based on further study of ESS systems with the collaboration with The ICC FCAC ESS subgroup.]

1207.11.7 Protection from impact. ~~Stationary storage battery systems~~ ESS installed in a location subject to vehicle damage shall in accordance with Section 1207.11.7.1 or 1207.11.7.2 shall be provided with impact protection in accordance with Section 1207.11.3 ~~be protected by approved barriers. Appliances in garages shall also be installed in accordance with Section 304.3 of the International Mechanical Code.~~

1207.11.7.1 Garages. Where an ESS is installed in the normal driving path of vehicle travel within a garage, impact protection complying with Section 1207.11.3 shall be installed. The normal driving path is a line perpendicular to the garage vehicle opening to the back wall, extending 3 ft. (914 mm) to either side along the back wall and to a height of 48 in. (1219 mm), (See Figure 1207.11.7.1)

Exception: Where the clear height of the vehicle garage opening is 7 ft 6 in. (2286 mm) or less, ESS installed not less than 36 inches (914 mm) above finished floor are not subject to vehicle impact protection requirements.

1207.11.7.2 Other locations subject to vehicle impact. Where an ESS is installed in a location other than as defined in Section 1207.11.7.1, and is subject to vehicle damage, impact protection shall be provided in accordance with Section 1207.11.7.3.

1207.11.7.3 Impact Protection Options. Where ESS is required to be protected from impact in accordance with Section 1207.11.7.1 or 1207.11.7.2 such protection shall comply with one of the following:

1. Bollards constructed in accordance with one of the following:

1.1 48 inches (1219 mm) in length by 3 inches (76mm) in diameter schedule 80 steel pipe embedded in a concrete pier 12 inches (304 mm) deep and 6 inches (152 mm) in diameter, with 36 inches (914 mm) of pipe exposed, filled with concrete, and spaced at a maximum interval of 5 feet (1524 mm). Each bollard shall be located not less than 6 inches (152 mm) from an ESS.

1.2 36 inches (914 mm) in height by 3 inches (76 mm) in diameter schedule 80 steel pipe fully welded to an 8 inch (203 mm) by 8 inch (203 mm) by ¼ inch (6.4 mm) thick steel plate and bolted to a concrete floor by means of 4 - ½ inch (13 mm) concrete anchors with 3 inch (76 mm) minimum embedment. Spacing shall be not greater than 60 inches. (1524 mm), and each bollard shall be located not less than 6 inches (152 mm) from the ESS.

1.3 Pre-manufactured steel pipe bollards shall be filled with concrete and anchored in accordance with the manufacturer's installation instructions, with spacing not greater than a 60 inches. (1524 mm). Located not less than 6 inches (152mm) from the ESS.

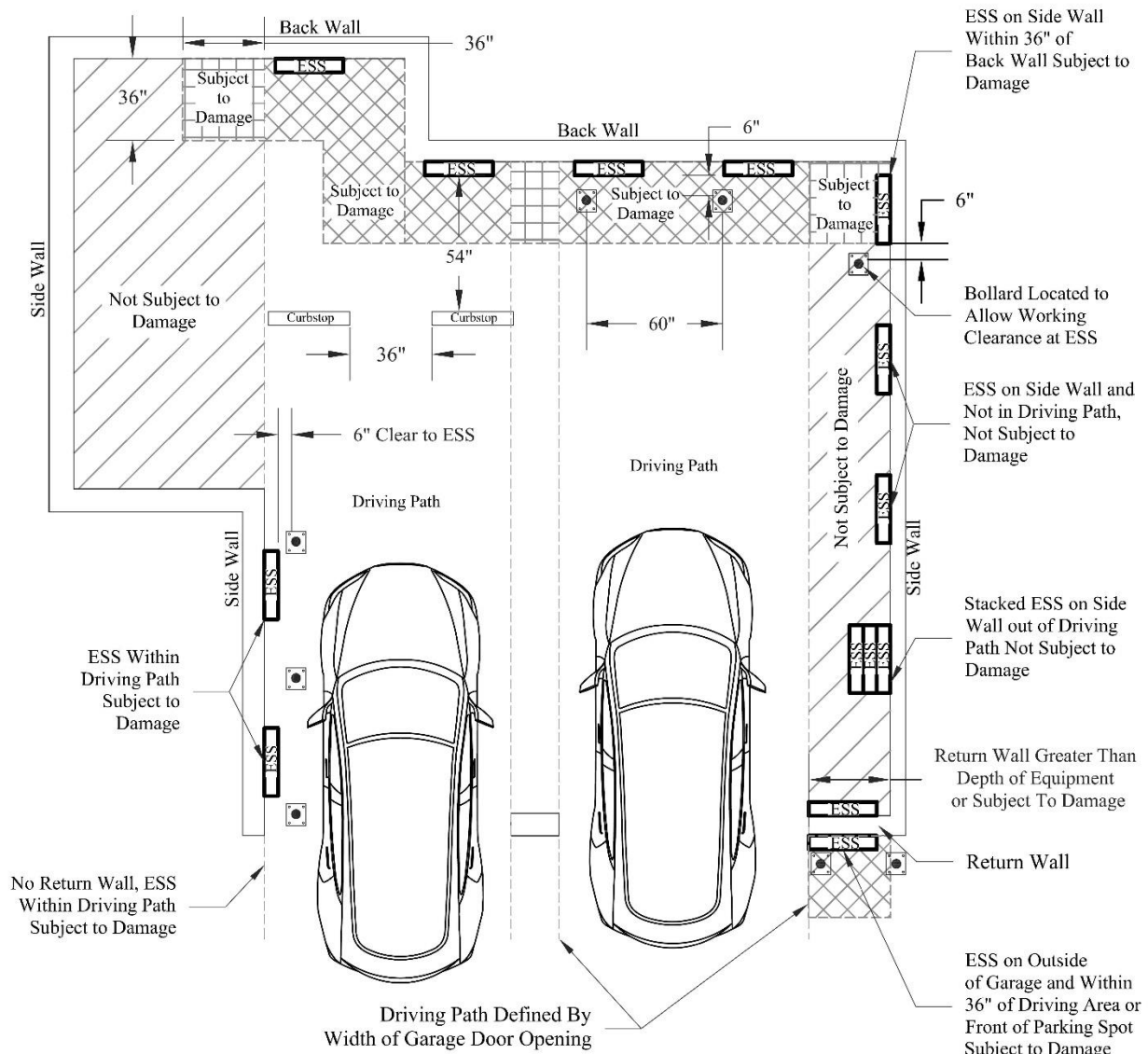
2. Wheel barriers constructed in accordance with one of the following:

2.1 6 inches (152 mm) in height by 6 inches (152 mm) in width wheel barrier made of concrete or polymer, anchored to the concrete floor not less than every 36 inches (914 mm) and located not less than 54 inches (1372 mm) from the ESS. Minimum 2 - ½ inch (13 mm) diameter concrete anchors with 3-inch (76 mm) embedment per barrier shall be used. Spacing between barriers shall be no greater than 36 inches. (914 mm).

2.2 Pre-manufactured wheel barriers shall be anchored in accordance with the manufacturers installation instructions.

3. Approved method designed to resist a 2000 lbf (8899 Newtons) impact in the direction of travel at 24 inches (608 mm) above grade.

Figure 1207.11.7.1
ESS Vehicle Impact Protection



1207.11.7.2 Other locations subject to vehicle impact Where an ESS is installed in a location other than as defined in 1207.11.7.1, and subject to vehicle damage, it shall be protected by approved barriers that comply with 1207.11.7.3

1207.11.7.3 Impact Protection Options Where the ESS is in the normal driving path of vehicle travel, one of the following methods shall be used. (See Figure 1207.11.7.3)

1207.11.7.3.1 Bollards Bollard construction shall comply with one of the following:

1. 48 in. L x 3 in. Dia. (1219 mm x 76 mm) SCH. 80 steel pipe embedded in a concrete pier 12 in. (304 mm) deep and 6 in. (152 mm) diameter, with 36 in. (914 mm) of pipe exposed, filled with concrete, and spaced at a maximum interval of 60 in. (1524 mm)

Each bollard shall be located not less than 6 in. (152 mm) from an ESS.

2. 36 in. H x 3 in. (914 mm x 76 mm) Dia. SCH. 80 steel pipe fully welded to an 8 in. x 8 in. x ¼ in. (203 mm x 203 mm x 6.4 mm) thick steel plate and bolted to a concrete floor by means of (4) ½ in. (13 mm) concrete anchors with 3 in. (76 mm) minimum embedment. Spacing shall be 60 in. (1524 mm) maximum, and each bollard shall be located not less than 6 in. (152 mm) from the ESS.

3. Pre-manufactured steel pipe bollards shall be filled with concrete and anchored in accordance with the manufacturer's installation instructions, 60 in. maximum spacing. Located not less than 6 in. (152mm) from the ESS.

1207.11.7.3.2 Wheel barriers Wheel barrier construction shall comply with one of the following:

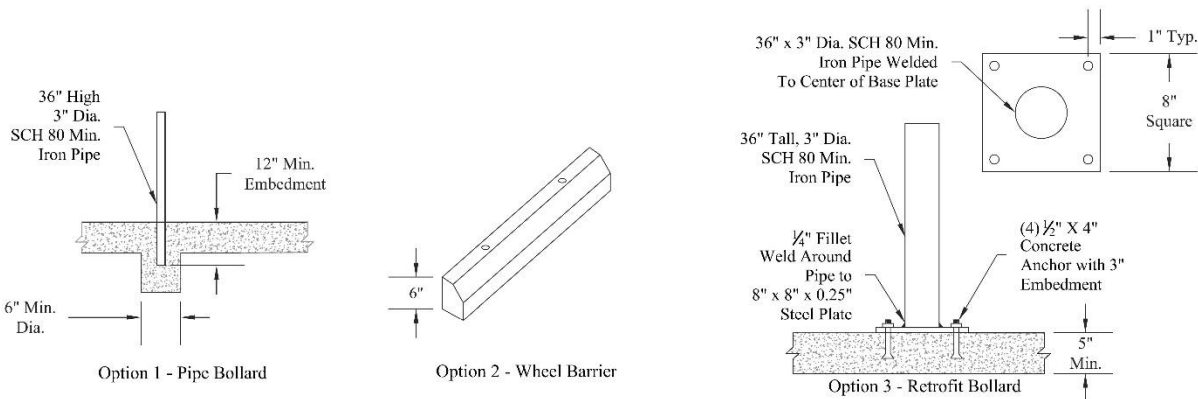
1. 6" H x 6" W (152 mm x 152 mm) wheel barrier made of concrete or polymer, anchored to the concrete floor every 36 in. (914 mm) minimum and located not less than 54 in. (1372 mm) from the ESS. Minimum (2) ½ in. (13 mm) diameter concrete anchors with 3 in. (76 mm) embedment per barrier shall be used. Spacing between barriers shall be a maximum of 36 in. (914 mm).

2. Pre-manufactured wheel barriers shall be anchored in accordance with the manufacturers installation instructions.

1207.11.7.3.3 Other Methods

1. Approved method designed to resist a 2000 lb. impact in the direction of travel at 24 in. above grade.

Figure 1207.11.7.3
ESS Vehicle Impact Protection Options



Notation:

Authority: Health and Safety Code Sections 1250, 1569.72, 1569.78, 1568.02, 1502, 1597.44, 1597.45, 1597.46, 1597.54, 1597.65, 13108, 13108.5, 13114, 13143, 13143.2, 13143.6, 13146, 13210, 13211, 17921, 18949.2, 25500 through 25545, Government Code Section 51189, Public Education Code 17074.50

Reference(s): Health and Safety Code Sections 13143, 13211, 18949.2, 25500 through 25545, Government Code Sections 51176, 51177, 51178 and 51179, Public Resources Code Sections 4201 through 4204

CHAPTER 13-19
RESERVED

CHAPTER 20
AVIATION FACILITIES

Item 20-1

Chapter 20, Aviation Facilities

[The SFM proposes to adopt Chapter 20 with existing amendments.]

Notation:

Authority: Health and Safety Code Sections 1250, 1569.72, 1569.78, 1568.02, 1502, 1597.44, 1597.45, 1597.46, 1597.54, 1597.65, 13108, 13108.5, 13114, 13143, 13143.2, 13143.6, 13146, 13210, 13211, 17921, 18949.2, 25500 through 25545, Government Code Section 51189, Public Education Code 17074.50

Reference(s): Health and Safety Code Sections 13143, 13211, 18949.2, 25500 through 25545, Government Code Sections 51176, 51177, 51178 and 51179, Public Resources Code Sections 4201 through 4204

CHAPTER 21 DRY CLEANING

Item 21-1

Chapter 21, Dry Cleaning

[The SFM proposes to adopt Chapter 21 with existing amendments.]

Notation:

Authority: Health and Safety Code Sections 1250, 1569.72, 1569.78, 1568.02, 1502, 1597.44, 1597.45, 1597.46, 1597.54, 1597.65, 13108, 13108.5, 13114, 13143, 13143.2, 13143.6, 13146, 13210, 13211, 17921, 18949.2, 25500 through 25545, Government Code Section 51189, Public Education Code 17074.50

Reference(s): Health and Safety Code Sections 13143, 13211, 18949.2, 25500 through 25545, Government Code Sections 51176, 51177, 51178 and 51179, Public Resources Code Sections 4201 through 4204

CHAPTER 22 COMBUSTIBLE DUST-PRODUCING OPERATIONS

Item 22-1

Chapter 22, Combustible Dust-Producing Operations

[The SFM proposes to adopt Chapter 22 with existing amendments.]

Notation:

Authority: Health and Safety Code Sections 1250, 1569.72, 1569.78, 1568.02, 1502, 1597.44, 1597.45, 1597.46, 1597.54, 1597.65, 13108, 13108.5, 13114, 13143, 13143.2, 13143.6, 13146, 13210, 13211, 17921, 18949.2, 25500 through 25545, Government

Code Section 51189, Public Education Code 17074.50

Reference(s): Health and Safety Code Sections 13143, 13211, 18949.2, 25500 through 25545, Government Code Sections 51176, 51177, 51178 and 51179, Public Resources Code Sections 4201 through 4204

CHAPTER 23 MOTOR FUEL-DISPENSING FACILITIES AND REPAIR GARAGES

Item 23-1

Chapter 23, Motor Fuel-Dispensing Facilities And Repair Garages

[The SFM proposes to adopt Chapter 23 with existing amendments.]

Notation:

Authority: Health and Safety Code Sections 1250, 1569.72, 1569.78, 1568.02, 1502, 1597.44, 1597.45, 1597.46, 1597.54, 1597.65, 13108, 13108.5, 13114, 13143, 13143.2, 13143.6, 13146, 13210, 13211, 17921, 18949.2, 25500 through 25545, Government Code Section 51189, Public Education Code 17074.50

Reference(s): Health and Safety Code Sections 13143, 13211, 18949.2, 25500 through 25545, Government Code Sections 51176, 51177, 51178 and 51179, Public Resources Code Sections 4201 through 4204

CHAPTER 24 FLAMMABLE FINISHES

Item 24-1

Chapter 24, Flammable Finishes

[The SFM proposes to adopt Chapter 24 with existing amendments.]

Notation:

Authority: Health and Safety Code Sections 1250, 1569.72, 1569.78, 1568.02, 1502, 1597.44, 1597.45, 1597.46, 1597.54, 1597.65, 13108, 13108.5, 13114, 13143, 13143.2, 13143.6, 13146, 13210, 13211, 17921, 18949.2, 25500 through 25545, Government Code Section 51189, Public Education Code 17074.50

Reference(s): Health and Safety Code Sections 13143, 13211, 18949.2, 25500 through 25545, Government Code Sections 51176, 51177, 51178 and 51179, Public Resources Code Sections 4201 through 4204

CHAPTER 25 FRUIT AND CROP RIPENING

Item 25-1

Chapter 25, Fruit And Crop Ripening

[The SFM proposes to NOT adopt Chapter 25.]

Notation:

Authority: Health and Safety Code Sections 1250, 1569.72, 1569.78, 1568.02, 1502, 1597.44, 1597.45, 1597.46, 1597.54, 1597.65, 13108, 13108.5, 13114, 13143, 13143.2, 13143.6, 13146, 13210, 13211, 17921, 18949.2, 25500 through 25545, Government Code Section 51189, Public Education Code 17074.50

Reference(s): Health and Safety Code Sections 13143, 13211, 18949.2, 25500 through 25545, Government Code Sections 51176, 51177, 51178 and 51179, Public Resources Code Sections 4201 through 4204

CHAPTER 26 FUMIGATION AND INSECTICIDAL FOGGING

Item 26-1

Chapter 26, Fumigation And Insecticidal Fogging

[The SFM proposes to NOT adopt Chapter 26.]

Notation:

Authority: Health and Safety Code Sections 1250, 1569.72, 1569.78, 1568.02, 1502, 1597.44, 1597.45, 1597.46, 1597.54, 1597.65, 13108, 13108.5, 13114, 13143, 13143.2, 13143.6, 13146, 13210, 13211, 17921, 18949.2, 25500 through 25545, Government Code Section 51189, Public Education Code 17074.50

Reference(s): Health and Safety Code Sections 13143, 13211, 18949.2, 25500 through 25545, Government Code Sections 51176, 51177, 51178 and 51179, Public Resources Code Sections 4201 through 4204

CHAPTER 27 SEMICONDUCTOR FABRICATION FACILITIES

Item 27-1

Chapter 27, Semiconductor Fabrication Facilities

[The SFM proposes to NOT adopt Chapter 27.]

Notation:

Authority: Health and Safety Code Sections 1250, 1569.72, 1569.78, 1568.02, 1502, 1597.44, 1597.45, 1597.46, 1597.54, 1597.65, 13108, 13108.5, 13114, 13143, 13143.2, 13143.6, 13146, 13210, 13211, 17921, 18949.2, 25500 through 25545, Government Code Section 51189, Public Education Code 17074.50

Reference(s): Health and Safety Code Sections 13143, 13211, 18949.2, 25500 through 25545, Government Code Sections 51176, 51177, 51178 and 51179, Public Resources Code Sections 4201 through 4204

CHAPTER 28 LUMBER YARDS AND AGRO-INDUSTRIAL, SOLID BIOMASS AND WOODWORKING FACILITIES

Item 28-1

Chapter 28, Lumber Yards And Agro-Industrial, Solid Biomass And Woodworking Facilities

[The SFM proposes to adopt Chapter 28 with existing amendments.]

Notation:

Authority: Health and Safety Code Sections 1250, 1569.72, 1569.78, 1568.02, 1502, 1597.44, 1597.45, 1597.46, 1597.54, 1597.65, 13108, 13108.5, 13114, 13143, 13143.2, 13143.6, 13146, 13210, 13211, 17921, 18949.2, 25500 through 25545, Government Code Section 51189, Public Education Code 17074.50

Reference(s): Health and Safety Code Sections 13143, 13211, 18949.2, 25500 through 25545, Government Code Sections 51176, 51177, 51178 and 51179, Public Resources Code Sections 4201 through 4204

CHAPTER 29 MANUFACTURE OF ORGANIC COATINGS

Item 29-1

Chapter 29, Manufacture Of Organic Coatings

[The SFM proposes to adopt Chapter 29 with existing amendments.]

Notation:

Authority: Health and Safety Code Sections 1250, 1569.72, 1569.78, 1568.02, 1502, 1597.44, 1597.45, 1597.46, 1597.54, 1597.65, 13108, 13108.5, 13114, 13143, 13143.2, 13143.6, 13146, 13210, 13211, 17921, 18949.2, 25500 through 25545, Government Code Section 51189, Public Education Code 17074.50

Reference(s): Health and Safety Code Sections 13143, 13211, 18949.2, 25500 through 25545, Government Code Sections 51176, 51177, 51178 and 51179, Public Resources Code Sections 4201 through 4204

CHAPTER 30 INDUSTRIAL OVENS

Item 30-1

Chapter 30, Industrial Ovens

[The SFM proposes to adopt Chapter 30 with existing amendments.]

Notation:

Authority: Health and Safety Code Sections 1250, 1569.72, 1569.78, 1568.02, 1502, 1597.44, 1597.45, 1597.46, 1597.54, 1597.65, 13108, 13108.5, 13114, 13143, 13143.2, 13143.6, 13146, 13210, 13211, 17921, 18949.2, 25500 through 25545, Government Code Section 51189, Public Education Code 17074.50

Reference(s): Health and Safety Code Sections 13143, 13211, 18949.2, 25500 through 25545, Government Code Sections 51176, 51177, 51178 and 51179, Public Resources Code Sections 4201 through 4204

CHAPTER 31 TENTS, TEMPORARY SPECIAL EVENT STRUCTURES AND OTHER MEMBRANE STRUCTURES

Item 31-1

Chapter 31, Tents, Temporary Special Event Structures And Other Membrane Structures

[The SFM proposes to adopt Chapter 31 with existing amendments.]

Item 31-2

Chapter 31, Tents, Temporary Special Event Structures And Other Membrane Structures

[The SFM proposes to adopt Chapter 31 with existing amendments.]

3101.1 Scope. Tents, temporary special event structures and membrane structures shall comply with this chapter. The provisions of Section 3103 are applicable only to temporary tents and membrane structures. The provisions of Sections 3104 and 3106 are applicable to temporary and permanent tents and membrane structures. The provisions of Section 3105 are applicable to temporary special event structures. The provisions of Section 3106 are applicable to inflatable amusement devices. The provisions of Section 3106.7 are applicable to outdoor assembly events. Other temporary structures shall comply with the International Building Code.

Item 31-3

Chapter 31, Tents, Temporary Special Event Structures And Other Membrane Structures

[The SFM proposes to adopt Chapter 31 with existing amendments.]

3103.8.2 Location.

~~[California Code of Regulations, Title 19, Division 1, §312] Parking of Vehicles. Vehicles necessary to the operation of the establishment, shall be parked at least 20 feet from any tent. No other vehicle shall be parked less than 100 feet from any tent except vehicles parked on a public street shall park at least 20 feet from any tent.~~

Item 31-4

Chapter 31, Tents, Temporary Special Event Structures And Other Membrane Structures

[The SFM proposes to adopt Chapter 31 with existing amendments.]

3103.9.1 Water Filled Vessels. *Water filled vessels shall not be used to anchor a tent or membrane structure unless approved and in accordance with the tent or membrane structure manufacturer's instructions.*

Item 31-5

Chapter 31, Tents, Temporary Special Event Structures And Other Membrane Structures

[The SFM proposes to adopt Chapter 31 with existing amendments.]

SECTION 3106

INFLATABLE AMUSEMENT DEVICES

3106.1 Scope. *All inflatable amusement devices shall comply with this Section.*

3106.2 General. *Inflatable amusement devices shall be designed, anchored, operated and maintained in accordance with the manufacturer's instructions and the requirements of ASTM F2374.*

3106.3 Combustible Materials. *The fabrics, textiles, containment netting and combustible small mesh materials used in the construction of the inflatable amusement device shall meet the flame propagation criteria of Test Method 2 of NFPA 701. Additionally, a label and affidavit containing the information required in Sections 3104.3 and 3104.4 of this code shall be permanently affixed to the device.*

3106.4 Electrical equipment and wiring. *All electrical equipment, blower motors and*

temporary wiring for electrical power or lighting shall comply Section 604 of this code.

3106.5 Portable generators. Portable generators shall comply with the applicable provisions of NFPA 70 and with the portable generator requirements of this code.

3106.7 Portable Fire Extinguishers. Each generator shall be provided with an approved portable fire extinguisher complying with Section 906 and placed in an approved location.

Notation:

Authority: Health and Safety Code Sections 1250, 1569.72, 1569.78, 1568.02, 1502, 1597.44, 1597.45, 1597.46, 1597.54, 1597.65, 13108, 13108.5, 13114, 13143, 13143.2, 13143.6, 13146, 13210, 13211, 17921, 18949.2, 25500 through 25545, Government Code Section 51189, Public Education Code 17074.50

Reference(s): Health and Safety Code Sections 13143, 13211, 18949.2, 25500 through 25545, Government Code Sections 51176, 51177, 51178 and 51179, Public Resources Code Sections 4201 through 4204

CHAPTER 32 HIGH-PILED COMBUSTIBLE STORAGE

Item 32-1

Chapter 32, High-Piled Combustible Storage

[The SFM proposes to adopt Chapter 32 with existing amendments.]

Item 32-2

Chapter 32, High-Piled Combustible Storage

[The SFM proposes to adopt Chapter 32 with existing amendments.]

TABLE 3203.8

EXAMPLES OF COMMODITY CLASSIFICATION

Portions of table not shown remain unchanged.

Lithium-ion (excludes lithium-ion installed in the equipment or appliance it powers)

Notation:

Authority: Health and Safety Code Sections 1250, 1569.72, 1569.78, 1568.02, 1502, 1597.44, 1597.45, 1597.46, 1597.54, 1597.65, 13108, 13108.5, 13114, 13143, 13143.2, 13143.6, 13146, 13210, 13211, 17921, 18949.2, 25500 through 25545, Government Code Section 51189, Public Education Code 17074.50

Reference(s): Health and Safety Code Sections 13143, 13211, 18949.2, 25500 through 25545, Government Code Sections 51176, 51177, 51178 and 51179, Public Resources

Code Sections 4201 through 4204

CHAPTER 33 FIRE SAFETY DURING CONSTRUCTION AND DEMOLITION

Item 33-1

Chapter 33, Fire Safety During Construction And Demolition

[The SFM proposes to adopt Chapter 33 with existing amendments.]

Notation:

Authority: Health and Safety Code Sections 1250, 1569.72, 1569.78, 1568.02, 1502, 1597.44, 1597.45, 1597.46, 1597.54, 1597.65, 13108, 13108.5, 13114, 13143, 13143.2, 13143.6, 13146, 13210, 13211, 17921, 18949.2, 25500 through 25545, Government Code Section 51189, Public Education Code 17074.50

Reference(s): Health and Safety Code Sections 13143, 13211, 18949.2, 25500 through 25545, Government Code Sections 51176, 51177, 51178 and 51179, Public Resources Code Sections 4201 through 4204

CHAPTER 34 TIRE REBUILDING AND TIRE STORAGE

Item 34-1

Chapter 34, Tire Rebuilding And Tire Storage

[The SFM proposes to adopt Chapter 34 with existing amendments.]

[The SFM proposes errata.]

3408.1 Water supply. A public or private fire protection water supply shall be provided in accordance with Section ~~508~~ 507. The water supply shall be arranged such that any part of the storage yard can be reached by using not more than 500 feet (152 m) of hose.

Notation:

Authority: Health and Safety Code Sections 1250, 1569.72, 1569.78, 1568.02, 1502, 1597.44, 1597.45, 1597.46, 1597.54, 1597.65, 13108, 13108.5, 13114, 13143, 13143.2, 13143.6, 13146, 13210, 13211, 17921, 18949.2, 25500 through 25545, Government Code Section 51189, Public Education Code 17074.50

Reference(s): Health and Safety Code Sections 13143, 13211, 18949.2, 25500 through 25545, Government Code Sections 51176, 51177, 51178 and 51179, Public Resources Code Sections 4201 through 4204

CHAPTER 35 WELDING AND OTHER HOT WORK

Item 35-1

Chapter 35, Welding And Other Hot Work

[The SFM proposes to adopt Chapter 35 with existing amendments.]

Notation:

Authority: Health and Safety Code Sections 1250, 1569.72, 1569.78, 1568.02, 1502, 1597.44, 1597.45, 1597.46, 1597.54, 1597.65, 13108, 13108.5, 13114, 13143, 13143.2, 13143.6, 13146, 13210, 13211, 17921, 18949.2, 25500 through 25545, Government Code Section 51189, Public Education Code 17074.50

Reference(s): Health and Safety Code Sections 13143, 13211, 18949.2, 25500 through 25545, Government Code Sections 51176, 51177, 51178 and 51179, Public Resources Code Sections 4201 through 4204

CHAPTER 36 MARINAS

Item 36-1

Chapter 36, Marinas

[The SFM proposes to adopt Chapter 36 with existing amendments.]

Notation:

Authority: Health and Safety Code Sections 1250, 1569.72, 1569.78, 1568.02, 1502, 1597.44, 1597.45, 1597.46, 1597.54, 1597.65, 13108, 13108.5, 13114, 13143, 13143.2, 13143.6, 13146, 13210, 13211, 17921, 18949.2, 25500 through 25545, Government Code Section 51189, Public Education Code 17074.50

Reference(s): Health and Safety Code Sections 13143, 13211, 18949.2, 25500 through 25545, Government Code Sections 51176, 51177, 51178 and 51179, Public Resources Code Sections 4201 through 4204

CHAPTER 37 COMBUSTIBLE FIBERS

Item 37-1

Chapter 37, Combustible Fibers

[The SFM proposes to adopt Chapter 37 with existing amendments.]

Notation:

Authority: Health and Safety Code Sections 1250, 1569.72, 1569.78, 1568.02, 1502, 1597.44, 1597.45, 1597.46, 1597.54, 1597.65, 13108, 13108.5, 13114, 13143, 13143.2,

13143.6, 13146, 13210, 13211, 17921, 18949.2, 25500 through 25545, Government Code Section 51189, Public Education Code 17074.50

Reference(s): Health and Safety Code Sections 13143, 13211, 18949.2, 25500 through 25545, Government Code Sections 51176, 51177, 51178 and 51179, Public Resources Code Sections 4201 through 4204

CHAPTER 38 RESERVED ~~HIGHER EDUCATION LABORATORIES~~

Item 38-1

Chapter 38, Reserved

[The SFM proposes to DELETE Chapter 38 in its entirety. Do not print in the California Fire Code.]

Notation:

Authority: Health and Safety Code Sections 1250, 1569.72, 1569.78, 1568.02, 1502, 1597.44, 1597.45, 1597.46, 1597.54, 1597.65, 13108, 13108.5, 13114, 13143, 13143.2, 13143.6, 13146, 13210, 13211, 17921, 18949.2, 25500 through 25545, Government Code Section 51189, Public Education Code 17074.50

Reference(s): Health and Safety Code Sections 13143, 13211, 18949.2, 25500 through 25545, Government Code Sections 51176, 51177, 51178 and 51179, Public Resources Code Sections 4201 through 4204

CHAPTER 39 PROCESSING AND EXTRACTION FACILITIES

Item 39-1

Chapter 39, Processing And Extraction Facilities

[The SFM proposes to adopt Chapter 37 with existing amendments.]

Notation:

Authority: Health and Safety Code Sections 1250, 1569.72, 1569.78, 1568.02, 1502, 1597.44, 1597.45, 1597.46, 1597.54, 1597.65, 13108, 13108.5, 13114, 13143, 13143.2, 13143.6, 13146, 13210, 13211, 17921, 18949.2, 25500 through 25545, Government Code Section 51189, Public Education Code 17074.50

Reference(s): Health and Safety Code Sections 13143, 13211, 18949.2, 25500 through 25545, Government Code Sections 51176, 51177, 51178 and 51179, Public Resources Code Sections 4201 through 4204

CHAPTER 40

STORAGE OF DISTILLED SPIRITS AND WINES

Item 40-1

Chapter 40, Storage Of Distilled Spirits and Wines

[The SFM proposes to adopt Chapter 40 with amendments.]

Notation:

Authority: Health and Safety Code Sections 1250, 1569.72, 1569.78, 1568.02, 1502, 1597.44, 1597.45, 1597.46, 1597.54, 1597.65, 13108, 13108.5, 13114, 13143, 13143.2, 13143.6, 13146, 13210, 13211, 17921, 18949.2, 25500 through 25545, Government Code Section 51189, Public Education Code 17074.50

Reference(s): Health and Safety Code Sections 13143, 13211, 18949.2, 25500 through 25545, Government Code Sections 51176, 51177, 51178 and 51179, Public Resources Code Sections 4201 through 4204

CHAPTER 40 STORAGE OF DISTILLED SPIRITS AND WINES

Item 40-1

Chapter 40, Storage Of Distilled Spirits and Wines

[The SFM proposes to adopt Chapter 40 with amendments.]

Notation:

Authority: Health and Safety Code Sections 1250, 1569.72, 1569.78, 1568.02, 1502, 1597.44, 1597.45, 1597.46, 1597.54, 1597.65, 13108, 13108.5, 13114, 13143, 13143.2, 13143.6, 13146, 13210, 13211, 17921, 18949.2, 25500 through 25545, Government Code Section 51189, Public Education Code 17074.50

Reference(s): Health and Safety Code Sections 13143, 13211, 18949.2, 25500 through 25545, Government Code Sections 51176, 51177, 51178 and 51179, Public Resources Code Sections 4201 through 4204

CHAPTERS ~~40~~ 41 through 47 RESERVED

Item 41-1

Chapter 41-47, Reserved

[The SFM proposes to repeal the amendment to the Chapter Tile for Chapter 40 and replace with the model code Chapter 41. The California amendment for Chapter 47 is proposed to carry forward.]

Notation:

Authority: Health and Safety Code Sections 1250, 1569.72, 1569.78, 1568.02, 1502, 1597.44, 1597.45, 1597.46, 1597.54, 1597.65, 13108, 13108.5, 13114, 13143, 13143.2, 13143.6, 13146, 13210, 13211, 17921, 18949.2, 25500 through 25545, Government Code Section 51189, Public Education Code 17074.50

Reference(s): Health and Safety Code Sections 13143, 13211, 18949.2, 25500 through 25545, Government Code Sections 51176, 51177, 51178 and 51179, Public Resources Code Sections 4201 through 4204

CHAPTER 48
MOTION PICTURE AND TELEVISION PRODUCTION
STUDIO SOUND STAGES, APPROVED PRODUCTION
FACILITIES AND PRODUCTION LOCATIONS

Item 48-1

Chapter 48, Motion Picture And Television Production Studio Sound Stages, Approved Production Facilities and Production Locations

[The SFM proposes to adopt Chapter 48 with existing amendments.]

Notation:

Authority: Health and Safety Code Sections 1250, 1569.72, 1569.78, 1568.02, 1502, 1597.44, 1597.45, 1597.46, 1597.54, 1597.65, 13108, 13108.5, 13114, 13143, 13143.2, 13143.6, 13146, 13210, 13211, 17921, 18949.2, 25500 through 25545, Government Code Section 51189, Public Education Code 17074.50

Reference(s): Health and Safety Code Sections 13143, 13211, 18949.2, 25500 through 25545, Government Code Sections 51176, 51177, 51178 and 51179, Public Resources Code Sections 4201 through 4204

CHAPTER 49
REQUIREMENTS FOR WILDLAND-URBAN
INTERFACE FIRE AREAS

Item 49-1

Chapter 49, Requirements For Wildland-Urban Interface Fire Areas

[The SFM proposes to adopt Chapter 49 with amendments.]

User note:

About this chapter: This chapter regulates development and construction in areas designated by the Director of the Department of Forestry and Fire Protection as Very High Fire Hazard Severity Zones in any Local Responsibility Area (LRA), and areas designated by the Board of Forestry and Fire Protection as a State Responsibility Area (SRA).

In addition to the building construction requirements in the California Building Code and California Residential Code this chapter contains requirements for development and construction in the LRA designated as Very High Fire Hazard Severity Zones and areas designated as SRA. While many of these provisions are found in Title 14 of the California Code of Regulations, they are replicated here for the code user. The local jurisdiction has the authority to apply the same regulations to LRA when the regulations are adopted by local ordinance.

The requirements in this chapter address the adoption of Very High Fire Hazard Severity Zones in the LRA; criteria for evaluating existing subdivisions that are at significant fire risk and are without an adequate secondary egress; and criteria for fire safety provisions required in the Safety Element of a city or county General Plan.

The chapter includes mitigation strategies to reduce the hazards of fire originating within a structure spreading to wildland and fire originating in wildland spreading to structures. These strategies are included in the following requirements:

1. Development of fire protection plans.
2. Development of landscape plans and long-term vegetation management.
3. Creation and maintenance of defensible space to protect structures and subdivisions.

SECTION 4901 GENERAL

4901.1 Scope. ~~The mitigation of conditions where~~ This chapter contains minimum requirements to mitigate conditions that might cause a fire originating in a structure to ignite vegetation in the Wildland-Urban Interface Fire Area, and, conversely, a wildfire burning in vegetative fuels may readily to transmit fire to buildings and threaten to destroy life, overwhelm fire suppression capabilities, or result in large property losses shall comply with this chapter.

4901.2 Purpose. ~~The purpose of this code chapter is to provide minimum standards to increase the ability of a building to resist the intrusion of flame or burning embers being projected by a vegetation fire and contributes to a systematic reduction in conflagration losses through the use of performance and prescriptive requirements~~ reduce the likelihood of life and property loss due to the wildfire through the use of performance and prescriptive requirements for construction and development in State Responsibility Area (SRA) and Local Responsibility Area (LRA) designated as a Very High Fire Hazard Severity Zone.

SECTION 4902 DEFINITIONS

4902.1 General. For the purpose of this chapter, certain terms are defined as follows:

GDF DIRECTOR. Director of the California Department of Forestry and Fire Protection (CAL FIRE).

FIRE PROTECTION PLAN. A document prepared for a specific project or development proposed for a Wildland-Urban Interface (WUI) Fire Area. It describes ways to minimize and mitigate potential for loss from wildfire exposure. ~~The Fire Protection Plan shall be in accordance with this Article. When required by the enforcing agency for the purposes of granting modifications, a fire protection plan shall be submitted. Only locally adopted ordinances that have been filed with the California Building Standards Commission in accordance with Section 101.14 or the Department of Housing and Community Development in accordance with Section 101.15 shall apply.~~

FIRE HAZARD SEVERITY ZONES. (text remains unchanged)

FIRE-RESISTANT VEGETATION. Plants, shrubs, trees and other vegetation which exhibit properties, such as high moisture content, little accumulation of dead vegetation, and low sap or resin content, that make them less likely to ignite or contribute heat or spread flame in a fire than native vegetation typically found in the region.

[Note: The following sources contain examples of types of vegetation that can be considered as fire resistant vegetation. (Fire resistant Plants for Home Landscapes, A Pacific Northwest Extension publication; Home Landscaping for Fire, University of California Division of Agriculture and Natural Resources; Sunset Western Garden Book)]

~~IGNITION-RESISTANT MATERIAL.~~ ~~A type of building material that resists ignition or sustained flaming combustion sufficiently so as to reduce losses from wildland-urban interface conflagrations under worst-case weather and fuel conditions with wildfire exposure of burning embers and small flames, as prescribed~~ complies with the requirements in Section 704A.2 in the California Building Code. 703A and SFM Standard 12-7A-5, Ignition-Resistant Material.

LOCAL RESPONSIBILITY AGENCY AREA VERY HIGH FIRE HAZARD SEVERITY ZONE (LRA). An area designated by a local agency upon the recommendation of the GDF Director pursuant to Government Code, Sections 51177(eb), 51178 and 51188, that is not a state responsibility area and where a local agency, city, county, city and county, or district is responsible for fire protection.

STATE RESPONSIBILITY AREA (SRA). Lands that are classified by the Board of Forestry pursuant to Public Resources Code Section 4125 where the financial responsibility of preventing and suppressing forest fires is primarily the responsibility of the state.

WILDFIRE. (text remains unchanged)

WILDFIRE EXPOSURE. (text remains unchanged)

WILDLAND-URBAN INTERFACE FIRE AREA (WUI). (text remains unchanged)

SECTION 4903
PLANS [RESERVED]

4903.1 General. The fire code official is authorized to require the owner or owner's authorized agent to provide a fire protection plan. The fire protection plan shall be prepared to determine the acceptability of fire protection and life safety measures designed to mitigate wildfire hazards presented for the property under consideration.

The fire protection plan shall be prepared by a registered design professional, qualified landscape architect, qualified fire safety specialist or similar specialist acceptable to the fire code official and shall analyze the wildfire risk of the building, project, premises or region, to recommend necessary changes.

The fire code official is authorized to require a preliminary fire protection plan prior to the submission of a final fire protection plan.

4903.2 Contents. The fire protection plan shall be based on a project-specific wildfire risk assessment that includes considerations of location, topography, aspect, and climatic and fire history.

The plan shall identify conformance with all applicable state wildfire protection regulations, statutes and applicable local ordinances, whichever are more restrictive.

The plan shall address fire department access, egress, road and address signage, water supply in addition to fuel reduction in accordance with Public Resources Code (PRC) 4290; the defensible space requirements in accordance with PRC 4291 or Government Code 51182; and the applicable building codes and standards for wildfire safety. The plan shall identify mitigation measures to address the project's specific wildfire risk and shall include the information required in Section 4903.2.1.

4903.2.1 Project information. The final fire protection plan shall be reviewed and approved prior to start of construction.

4903.2.1.1 Preliminary Fire Protection Plan. When a preliminary fire protection plan is submitted, it shall include, at a minimum, the following:

1. Total size of the project.

2. Information on the adjoining properties on all sides, including current land uses, and, if known, existing structures and densities, planned construction, natural vegetation, environmental restoration plans, roads and parks.

3. A map with all project boundary lines, property lines, slope contour lines, proposed structure foundation footprints, and proposed roads and driveways. The map shall identify project fuel modification zones and method of identifying the fuel modification zone boundaries.

4903.2.1.2 Final Fire Protection Plan. Final fire protection plan shall include

items listed in 4903.2.1.1 and the following:

1. A map identifying all proposed plants in the fuel modification zones with a legend that includes a symbol for each proposed plant species. The plan shall include specific information on each species proposed, including but not limited to:

- a. The plant life-form;
- b. scientific and common name; and
- c. expected height and width for mature growth.

2. Identification of irrigated and non-irrigated zones.

3. Requirements for vegetation reduction around emergency access and evacuation routes.

4. Identification of points of access for equipment and personnel to maintain vegetation in common areas.

5. Legally binding statements regarding community responsibility for maintenance of fuel modification zones.

6. Legally binding statements to be included in covenants, conditions, and restrictions regarding property owner responsibilities for vegetation maintenance.

SECTION 4904

FIRE HAZARD SEVERITY ZONES

4904.1 General. Lands in the state are classified by the CDF Director in accordance with the severity of wildfire hazard expected to prevail in those areas and the responsibility for fire protection, so that measures may be identified which will reduce the potential for losses to life, property, and resources from wildfire.

4904.2 Classifications. The CDF Director classifies lands into fire hazard severity zones in accordance with California Public Resources Code, Sections 4201 through 4204 for State Responsibility Areas and accordance with Government Code, Sections 51175 through 51189 for areas where a local agency is responsible for fire protection.

4904.3 Local Agency Requirements. Within 30 days after receiving a transmittal from the director that identifies very high fire hazard severity zones, a local agency shall make the information available for public review. The information shall be presented in a format that is understandable and accessible to the general public, including, but not limited to, maps. A local agency shall post a notice at the office of the county recorder, county assessor, and county planning agency identifying the location of the map provided by the director pursuant to Government Code, Section 51178. If the agency amends the map, pursuant to subdivision (b) or (c) of this section, the notice shall instead identify the location of the amended map.

4904.3.1 Local Agency Ordinances. A local agency shall designate, by ordinance, very high fire hazard severity zones in its jurisdiction within 120 days of receiving recommendations from the director pursuant to subdivisions (b) and (c) of Government Code, Section 51178. The local agency shall transmit a copy of an ordinance adopted pursuant to this section to the State Board of Forestry and Fire Protection within 30 days of adoption, as specified in Title 14, Division 1.5, Chapter 7, Subchapter 3, Article 1.

4904.3.2 Local Agency Discretion. A local agency may, at its discretion, include areas within the jurisdiction of the local agency, not identified as very high fire hazard severity zones by the director, as very high fire hazard severity zones following a finding supported by substantial evidence in the record that the requirements of Government Code Section 51182 are necessary for effective fire protection within the area.

SECTION 4905 WILDFIRE PROTECTION BUILDING CONSTRUCTION

4905.1 General. (text remains unchanged)

4905.2 Construction methods and requirements within established limits. Within the limits established by law, construction methods intended to mitigate wildfire exposure shall comply with the wildfire protection building construction requirements contained in the California Building Standards Code, including the following:

1. California Building Code, Chapter 7A,
2. California Residential Code, Section R3237,
3. California Referenced Standards Code, Chapter 12-7A.

4905.3 Establishment of limits. The establishment of limits for the Wildland-Urban Interface Fire Area's required construction methods shall be designated pursuant to the California Public Resources Code for State Responsibility Areas or by a local agency following a finding supported by substantial evidence in the record that the requirements of this section are necessary for effective fire protection within the area.

SECTION 4906 HAZARDOUS VEGETATION AND FUEL MANAGEMENT

4906.1 General. Planting of Hazardous vegetation for new landscaping shall be selected to reduce non-fire-resistant vegetation in proximity to a structure and to maintain vegetation as it matures. and fuels shall be managed to reduce the severity of potential exterior wildfire exposure to buildings and to reduce the risk of fire spreading to buildings as required by applicable laws and regulations.

4906.2 Application. All new plantings of vegetation in State Responsibility Areas (SRA)

and Local Responsibility Areas (LRA) designated as a Very High Fire Hazard Severity Zone shall comply with Section 4906.3 through 4906.5.3. Buildings and structures located in the following areas shall maintain the required hazardous vegetation and fuel management:

~~1. All unincorporated lands designated by the State Board of Forestry and Fire Protection as State Responsibility Area (SRA) including:~~

~~1.1. Moderate Fire Hazard Severity Zones.~~

~~1.2. High Fire Hazard Severity Zones.~~

~~1.3. Very-high Fire Hazard Severity Zones.~~

~~2. Land designated as Very-high Fire Hazard Severity Zone by cities and other local agencies.~~

4906.3 Landscape plans. Landscape plans shall be provided when required by the enforcing agency. The landscape plan shall include development and maintenance requirements for the vegetation management zone adjacent to structures and roadways, and to provide significant fire hazard reduction benefits for public and firefighting safety.

Requirements. ~~Hazardous vegetation and fuels around all applicable buildings and structures shall be maintained in accordance with the following laws and regulations:~~

~~1. Public Resources Code, Section 4291.~~

~~2. California Code of Regulations, Title 14, Division 1.5, Chapter 7, Subchapter 3, Section 1299 (see guidance for implementation "General Guideline to Create Defensible Space").~~

~~3. California Government Code, Section 51182.~~

~~4. California Code of Regulations, Title 19, Division 1, Chapter 7, Subchapter 1, Section 3.07.~~

4906.3.1 Contents. Landscape plans shall contain the following:

1. Delineation of the 30-foot and 100-foot fuel management zones from all structures.

2. Identification of existing vegetation to remain and proposed new vegetation.

3. Identification of irrigated areas.

4. A plant legend with both botanical and common names, and identification of all plant material symbols.

5. Identification of ground coverings within the 30-foot zone.

4906.3.4 Vegetation. *All new vegetation shall be fire-resistant vegetation in accordance with this section.*

Exception: *Trees classified as non-fire-resistant vegetation complying with Section 4906.3.4.2.1.*

To be considered fire-resistant vegetation, it must meet at least one of the following:

1. Be identified as fire-resistant vegetation in an approved book, journal or listing from an approved organization.
2. Be identified as fire-resistant vegetation by a licensed landscape architect with supporting justification.
3. Plants considered fire-resistant vegetation and approved by the local enforcing agency.

4906.3.4.1 Shrubs. *All new plantings of shrubs shall comply with the following:*

1. Shrubs shall not exceed 6 feet in height.
2. Groupings of shrubs are limited to a maximum aggregate diameter of 10 feet.
3. Shrub groupings shall be separated from other groupings a minimum of 15 feet.
4. Shrub groupings shall be separated from structures a minimum of 30 feet.
5. Where shrubs are located below or within a tree's drip line, the lowest tree branch shall be a minimum of 3 times the height of the understory shrubs or 10 feet, whichever is greater.

4906.3.4.2 Trees. *Trees shall be managed as follows within the 30-foot zone of a structure:*

1. New trees shall be planted and maintained so that the tree's drip line at maturity is a minimum of 10 feet from any combustible structure.
2. The horizontal distance between crowns of new trees and crowns of adjacent trees shall not be less than 10 feet.
3. Existing trees shall be trimmed to provide a minimum separation of 10

feet from roofs, eaves, chimneys or siding per Title 14 Section 1299.03.

4906.3.4.2.1 Non-fire-resistant vegetation. New trees not classified as fire-resistant vegetation, such as conifers, palms, pepper trees and eucalyptus species, shall be permitted provided the tree is planted and maintained so that the tree's drip line at maturity is a minimum 30 feet from any combustible structure.

SECTION 4907 DEFENSIBLE SPACE

4907.1 General. Hazardous vegetation and fuels shall be managed to reduce the severity of potential exterior wildfire exposure to buildings and to reduce the risk of fire spreading to buildings as required by applicable laws and regulations.

~~Defensible space will be maintained~~ managed around all buildings and structures in State Responsibility Area (SRA) as required in Public Resources Code 42901. ~~and "SRA Fire Safe Regulations" California Code of Regulations, Title 14, Division 1.5, Chapter 7, Subchapter 2, Section 1270. Buildings and structures within the Very-high Fire Hazard Severity Zones of a Local Responsibility Areas (LRA) shall maintain defensible space as outlined in Government Code 51175—51189 and any local ordinance of the authority having jurisdiction.~~

4907.2 Application. Buildings and structures located in the following areas shall maintain the required hazardous vegetation and fuel management:

1. All unincorporated lands designated by the State Board of Forestry and Fire Protection as a State Responsibility Area (SRA).
2. Land designated as a Very High Fire Hazard Severity Zone by the Director.
3. Land designated in ordinance by local agencies as a Very High Fire Hazard Severity Zone pursuant to Government Code Section 51179.

4907.3 Requirements. Hazardous vegetation and fuels around all buildings and structures shall be maintained in accordance with the following laws and regulations:

1. Public Resources Code, Section 4291.
2. California Code of Regulations, Title 14, Division 1.5, Chapter 7, Subchapter 3, Article 3.
3. California Government Code, Section 51182.
4. California Code of Regulations, Title 19, Division 1, Chapter 7, Subchapter 1, Section 3.07.

SECTION 4908 FIRE SAFE DEVELOPMENT REGULATIONS

4908.1 General. Pursuant to PRC 4290 all residential, commercial, and industrial building construction within state responsibility areas approved after January 1, 1991, and within lands classified and designated as a LRA Very High Fire Hazard Severity Zone, as defined in subdivision (i) of Section 51177 of the Government Code after July 1, 2021, shall comply with the SRA Fire Safe Development Regulations as specified in Title 14, Division 1.5, Chapter 7, Subchapter 2.

4908.2 Subdivision Map Findings. Pursuant to Government Code (GC), Section 66474.02, before approving a tentative map, or a parcel map for which a tentative map was not required, for an area located in a SRA or a LRA Very High Fire Hazard Severity Zone, as both are defined in GC Section 51177, a legislative body of a county shall, except as provided in GC Subsection 66474.02(c), shall make findings regarding compliance with the SRA Fire Safe Regulations and the availability of structural fire protection and suppression services. These findings and accompanying map shall be transmitted to the Board of Forestry and Fire Protection and comply with the requirements in Title 14, Division 1.5, Chapter 7, Subchapter 1, Article 1.

SECTION 4909 SUBDIVISION REVIEW SURVEY

4909.1 Subdivision Identification. Pursuant to Public Resources Code Section 4290.5 and Title 14, Division 1.5, Chapter 7, Subchapter 1, Article 2, the Board, in consultation with the Office of the State Fire Marshal, shall survey local governments to identify existing subdivisions, as defined in Article 2, located in a SRA area or a LRA Very High Fire Hazard Severity Zone without a secondary egress route that are at significant fire risk.

4909.2 Fire Safety Recommendations. The Board, in consultation with the Office of the State Fire Marshal and the local government that identified the subdivision, shall develop recommendations to improve the subdivision's fire safety. The Board shall provide the final recommendations to the local government that identified the subdivision and to the residents of the subdivision.

4909.3 Implementation. The Board shall maintain a list of the subdivisions identified and the status of the implementation of the recommendations provided.

4909.4 Re-survey. Beginning July 1, 2021, the Board shall conduct this survey every five years.

SECTION 4910 GENERAL PLAN SAFETY ELEMENT

4910.1 General. Pursuant to Government Code Section 65302(g)(3), the safety element of a city or county's General Plan shall be reviewed updated as necessary to address the risk of fire for land classified as SRA as defined in Section 4102 of the

Public Resources Code, and land classified as a LRA Very High Fire Hazard Severity Zone, as defined in Section 51177.

4910.2 Submission to the Board of Forestry and Fire Protection and Local Fire Agencies. Pursuant to Government Code Section 65302.5(b)(1), the draft element of or draft amendment to the safety element of a county or a city's general plan shall be submitted to the State Board of Forestry and Fire Protection and to every local agency that provides fire protection to territory in the city or county at least 90 days prior to either of the following: the adoption or amendment to the safety element of its general plan for each county that contains state responsibility areas; or the adoption or amendment to the safety element of its general plan for each city or county that contains a very high fire hazard severity zone as defined pursuant to subdivision (i) of Section 51177.

4910.3 Review by the Board of Forestry and Fire Protection and Local Fire Agencies. The State Board of Forestry and Fire Protection shall, and a local agency may, review the draft or an existing safety element and recommend changes to the planning agency within 60 days of its receipt regarding the requirements in Government Code Section 65302.5(b)(2). The review by the Board of Forestry and Fire Protection is governed by Title 14, Division 1.5, Chapter 7, Article 6.

4910.4 Adoption of the Safety Element. Prior to the adoption of its draft element or draft amendment, the board of supervisors of the county or the city council of a city shall consider the recommendations, if any, made by the State Board of Forestry and Fire Protection and any local agency that provides fire protection to territory in the city or county. The board of supervisors or city council shall respond to the Board of Forestry and Fire Protection and any local agency providing fire protection in compliance with Government Code Section 65302.5(b)(3) and (b)(4) and Title 14, Division 1.5, Chapter 7, Article 6.

Notation:

Authority: Health and Safety Code Sections 1250, 1569.72, 1569.78, 1568.02, 1502, 1597.44, 1597.45, 1597.46, 1597.54, 1597.65, 13108, 13108.5, 13114, 13143, 13143.2, 13143.6, 13146, 13210, 13211, 17921, 18949.2, 25500 through 25545, Government Code Section 51189, Public Education Code 17074.50

Reference(s): Health and Safety Code Sections 13143, 13211, 18949.2, 25500 through 25545, Government Code Sections 51176, 51177, 51178 and 51179, Public Resources Code Sections 4201 through 4204

CHAPTER 50 HAZARDOUS MATERIALS—GENERAL PROVISIONS

Item 50-1

Chapter 50, Hazardous Materials—General Provisions

[The SFM proposes to adopt Chapter 50 with amendments.]

Notation:

Authority: Health and Safety Code Sections 1250, 1569.72, 1569.78, 1568.02, 1502, 1597.44, 1597.45, 1597.46, 1597.54, 1597.65, 13108, 13108.5, 13114, 13143, 13143.2, 13143.6, 13146, 13210, 13211, 17921, 18949.2, 25500 through 25545, Government Code Section 51189, Public Education Code 17074.50

Reference(s): Health and Safety Code Sections 13143, 13211, 18949.2, 25500 through 25545, Government Code Sections 51176, 51177, 51178 and 51179, Public Resources Code Sections 4201 through 4204

**CHAPTER 51
AEROSOLS**

Item 51-1

Chapter 51, Aerosols

[The SFM proposes to adopt Chapter 51.]

Notation:

Authority: Health and Safety Code Sections 1250, 1569.72, 1569.78, 1568.02, 1502, 1597.44, 1597.45, 1597.46, 1597.54, 1597.65, 13108, 13108.5, 13114, 13143, 13143.2, 13143.6, 13146, 13210, 13211, 17921, 18949.2, 25500 through 25545, Government Code Section 51189, Public Education Code 17074.50

Reference(s): Health and Safety Code Sections 13143, 13211, 18949.2, 25500 through 25545, Government Code Sections 51176, 51177, 51178 and 51179, Public Resources Code Sections 4201 through 4204

**CHAPTER 52
RESERVED**

**CHAPTER 53
COMPRESSED GASES**

Item 53-1

Chapter 53, Compressed Gases

[The SFM proposes to adopt Chapter 53 with amendments.]

Notation:

Authority: Health and Safety Code Sections 1250, 1569.72, 1569.78, 1568.02, 1502, 1597.44, 1597.45, 1597.46, 1597.54, 1597.65, 13108, 13108.5, 13114, 13143, 13143.2, 13143.6, 13146, 13210, 13211, 17921, 18949.2, 25500 through 25545, Government

Code Section 51189, Public Education Code 17074.50

Reference(s): Health and Safety Code Sections 13143, 13211, 18949.2, 25500 through 25545, Government Code Sections 51176, 51177, 51178 and 51179, Public Resources Code Sections 4201 through 4204

CHAPTER 54 CORROSIVE MATERIALS

Item 54-1

Chapter 54, Corrosive Materials

[The SFM proposes to adopt Chapter 54 with amendments.]

Notation:

Authority: Health and Safety Code Sections 1250, 1569.72, 1569.78, 1568.02, 1502, 1597.44, 1597.45, 1597.46, 1597.54, 1597.65, 13108, 13108.5, 13114, 13143, 13143.2, 13143.6, 13146, 13210, 13211, 17921, 18949.2, 25500 through 25545, Government Code Section 51189, Public Education Code 17074.50

Reference(s): Health and Safety Code Sections 13143, 13211, 18949.2, 25500 through 25545, Government Code Sections 51176, 51177, 51178 and 51179, Public Resources Code Sections 4201 through 4204

CHAPTER 55 CRYOGENIC FLUIDS

Item 55-1

Chapter 55, Cryogenic Fluids

[The SFM proposes to adopt Chapter 55 with amendments.]

Notation:

Authority: Health and Safety Code Sections 1250, 1569.72, 1569.78, 1568.02, 1502, 1597.44, 1597.45, 1597.46, 1597.54, 1597.65, 13108, 13108.5, 13114, 13143, 13143.2, 13143.6, 13146, 13210, 13211, 17921, 18949.2, 25500 through 25545, Government Code Section 51189, Public Education Code 17074.50

Reference(s): Health and Safety Code Sections 13143, 13211, 18949.2, 25500 through 25545, Government Code Sections 51176, 51177, 51178 and 51179, Public Resources Code Sections 4201 through 4204

CHAPTER 56 EXPLOSIVES AND FIREWORKS

Item 56-1

Chapter 56, Explosives And Fireworks

[The SFM proposes to adopt Chapter 56 with amendments.]

Notation:

Authority: Health and Safety Code Sections 1250, 1569.72, 1569.78, 1568.02, 1502, 1597.44, 1597.45, 1597.46, 1597.54, 1597.65, 13108, 13108.5, 13114, 13143, 13143.2, 13143.6, 13146, 13210, 13211, 17921, 18949.2, 25500 through 25545, Government Code Section 51189, Public Education Code 17074.50

Reference(s): Health and Safety Code Sections 13143, 13211, 18949.2, 25500 through 25545, Government Code Sections 51176, 51177, 51178 and 51179, Public Resources Code Sections 4201 through 4204

CHAPTER 57 FLAMMABLE AND COMBUSTIBLE LIQUIDS

Item 57-1

Chapter 57, Flammable And Combustible Liquids

[The SFM proposes to adopt Chapter 57 with amendments.]

Notation:

Authority: Health and Safety Code Sections 1250, 1569.72, 1569.78, 1568.02, 1502, 1597.44, 1597.45, 1597.46, 1597.54, 1597.65, 13108, 13108.5, 13114, 13143, 13143.2, 13143.6, 13146, 13210, 13211, 17921, 18949.2, 25500 through 25545, Government Code Section 51189, Public Education Code 17074.50

Reference(s): Health and Safety Code Sections 13143, 13211, 18949.2, 25500 through 25545, Government Code Sections 51176, 51177, 51178 and 51179, Public Resources Code Sections 4201 through 4204

CHAPTER 58 FLAMMABLE GASES AND FLAMMABLE CRYOGENIC FLUIDS

Item 58-1

Chapter 58, Flammable Gases And Flammable Cryogenic Fluids

[The SFM proposes to adopt Chapter 58 with amendments.]

Notation:

Authority: Health and Safety Code Sections 1250, 1569.72, 1569.78, 1568.02, 1502, 1597.44, 1597.45, 1597.46, 1597.54, 1597.65, 13108, 13108.5, 13114, 13143, 13143.2, 13143.6, 13146, 13210, 13211, 17921, 18949.2, 25500 through 25545, Government

Code Section 51189, Public Education Code 17074.50

Reference(s): Health and Safety Code Sections 13143, 13211, 18949.2, 25500 through 25545, Government Code Sections 51176, 51177, 51178 and 51179, Public Resources Code Sections 4201 through 4204

CHAPTER 59 FLAMMABLE SOLIDS

Item 59-1

Chapter 59, Flammable Solids

[The SFM proposes to adopt Chapter 59 with amendments.]

Notation:

Authority: Health and Safety Code Sections 1250, 1569.72, 1569.78, 1568.02, 1502, 1597.44, 1597.45, 1597.46, 1597.54, 1597.65, 13108, 13108.5, 13114, 13143, 13143.2, 13143.6, 13146, 13210, 13211, 17921, 18949.2, 25500 through 25545, Government Code Section 51189, Public Education Code 17074.50

Reference(s): Health and Safety Code Sections 13143, 13211, 18949.2, 25500 through 25545, Government Code Sections 51176, 51177, 51178 and 51179, Public Resources Code Sections 4201 through 4204

CHAPTER 60 HIGHLY TOXIC AND TOXIC MATERIALS

Item 60-1

Chapter 60, Highly Toxic And Toxic Materials

[The SFM proposes to adopt Chapter 60 with amendments.]

Notation:

Authority: Health and Safety Code Sections 1250, 1569.72, 1569.78, 1568.02, 1502, 1597.44, 1597.45, 1597.46, 1597.54, 1597.65, 13108, 13108.5, 13114, 13143, 13143.2, 13143.6, 13146, 13210, 13211, 17921, 18949.2, 25500 through 25545, Government Code Section 51189, Public Education Code 17074.50

Reference(s): Health and Safety Code Sections 13143, 13211, 18949.2, 25500 through 25545, Government Code Sections 51176, 51177, 51178 and 51179, Public Resources Code Sections 4201 through 4204

CHAPTER 61 LIQUEFIED PETROLEUM GASES

Item 61-1

Chapter 61, Liquefied Petroleum Gases

[The SFM proposes to adopt Chapter 61 with amendments.]

Notation:

Authority: Health and Safety Code Sections 1250, 1569.72, 1569.78, 1568.02, 1502, 1597.44, 1597.45, 1597.46, 1597.54, 1597.65, 13108, 13108.5, 13114, 13143, 13143.2, 13143.6, 13146, 13210, 13211, 17921, 18949.2, 25500 through 25545, Government Code Section 51189, Public Education Code 17074.50

Reference(s): Health and Safety Code Sections 13143, 13211, 18949.2, 25500 through 25545, Government Code Sections 51176, 51177, 51178 and 51179, Public Resources Code Sections 4201 through 4204

CHAPTER 62 ORGANIC PEROXIDES

Item 62-1

Chapter 62, Organic Peroxides

[The SFM proposes to adopt Chapter 62 with amendments.]

Notation:

Authority: Health and Safety Code Sections 1250, 1569.72, 1569.78, 1568.02, 1502, 1597.44, 1597.45, 1597.46, 1597.54, 1597.65, 13108, 13108.5, 13114, 13143, 13143.2, 13143.6, 13146, 13210, 13211, 17921, 18949.2, 25500 through 25545, Government Code Section 51189, Public Education Code 17074.50

Reference(s): Health and Safety Code Sections 13143, 13211, 18949.2, 25500 through 25545, Government Code Sections 51176, 51177, 51178 and 51179, Public Resources Code Sections 4201 through 4204

CHAPTER 63 OXIDIZERS, OXIDIZING GASES AND OXIDIZING CRYOGENIC FLUIDS

Item 63-1

Chapter 63, Oxidizers, Oxidizing Gases And Oxidizing Cryogenic Fluids

[The SFM proposes to adopt Chapter 63 with amendments.]

Notation:

Authority: Health and Safety Code Sections 1250, 1569.72, 1569.78, 1568.02, 1502, 1597.44, 1597.45, 1597.46, 1597.54, 1597.65, 13108, 13108.5, 13114, 13143, 13143.2, 13143.6, 13146, 13210, 13211, 17921, 18949.2, 25500 through 25545, Government

Code Section 51189, Public Education Code 17074.50

Reference(s): Health and Safety Code Sections 13143, 13211, 18949.2, 25500 through 25545, Government Code Sections 51176, 51177, 51178 and 51179, Public Resources Code Sections 4201 through 4204

CHAPTER 64 PYROPHORIC MATERIALS

Item 64-1

Chapter 64, Pyrophoric Materials

[The SFM proposes to adopt Chapter 64 with amendments.]

Notation:

Authority: Health and Safety Code Sections 1250, 1569.72, 1569.78, 1568.02, 1502, 1597.44, 1597.45, 1597.46, 1597.54, 1597.65, 13108, 13108.5, 13114, 13143, 13143.2, 13143.6, 13146, 13210, 13211, 17921, 18949.2, 25500 through 25545, Government Code Section 51189, Public Education Code 17074.50

Reference(s): Health and Safety Code Sections 13143, 13211, 18949.2, 25500 through 25545, Government Code Sections 51176, 51177, 51178 and 51179, Public Resources Code Sections 4201 through 4204

CHAPTER 65 PYROXYLIN (CELLULOSE NITRATE) PLASTICS

Item 65-1

Chapter 65, Pyroxylin (Cellulose Nitrate) Plastics

[The SFM proposes to adopt Chapter 65 with amendments.]

Notation:

Authority: Health and Safety Code Sections 1250, 1569.72, 1569.78, 1568.02, 1502, 1597.44, 1597.45, 1597.46, 1597.54, 1597.65, 13108, 13108.5, 13114, 13143, 13143.2, 13143.6, 13146, 13210, 13211, 17921, 18949.2, 25500 through 25545, Government Code Section 51189, Public Education Code 17074.50

Reference(s): Health and Safety Code Sections 13143, 13211, 18949.2, 25500 through 25545, Government Code Sections 51176, 51177, 51178 and 51179, Public Resources Code Sections 4201 through 4204

CHAPTER 66 UNSTABLE (REACTIVE) MATERIALS

Item 66-1

Chapter 66, Unstable (Reactive) Materials

[The SFM proposes to adopt Chapter 66 with amendments.]

Notation:

Authority: Health and Safety Code Sections 1250, 1569.72, 1569.78, 1568.02, 1502, 1597.44, 1597.45, 1597.46, 1597.54, 1597.65, 13108, 13108.5, 13114, 13143, 13143.2, 13143.6, 13146, 13210, 13211, 17921, 18949.2, 25500 through 25545, Government Code Section 51189, Public Education Code 17074.50

Reference(s): Health and Safety Code Sections 13143, 13211, 18949.2, 25500 through 25545, Government Code Sections 51176, 51177, 51178 and 51179, Public Resources Code Sections 4201 through 4204

CHAPTER 67 WATER-REACTIVE SOLIDS AND LIQUIDS

Item 67-1

Chapter 67, Water-Reactive Solids And Liquids

[The SFM proposes to adopt Chapter 67 with amendments.]

Notation:

Authority: Health and Safety Code Sections 1250, 1569.72, 1569.78, 1568.02, 1502, 1597.44, 1597.45, 1597.46, 1597.54, 1597.65, 13108, 13108.5, 13114, 13143, 13143.2, 13143.6, 13146, 13210, 13211, 17921, 18949.2, 25500 through 25545, Government Code Section 51189, Public Education Code 17074.50

Reference(s): Health and Safety Code Sections 13143, 13211, 18949.2, 25500 through 25545, Government Code Sections 51176, 51177, 51178 and 51179, Public Resources Code Sections 4201 through 4204

CHAPTERS 68 through 79 RESERVED

CHAPTER 80 REFERENCED STANDARDS

Item 80-1

Chapter 80, Referenced Standards

[The SFM proposes to adopt Chapter 80 with amendments.]

Item 80-2

Chapter 80, ASTM F2374 Standard Practice For Design, Manufacture, Operation, and Maintenance Of Inflatable Amusement Devices

ASTM F2374 - Standard Practice for Design, Manufacture, Operation, and Maintenance of Inflatable Amusement Devices

Item 80-3

Chapter 80, NFPA 2 Hydrogen Technologies Code

NFPA 2-~~1920~~

Item 80-4

Chapter 17, NFPA 10 Portable Fire Extinguishers

NFPA 10-~~1821~~

Item 80-5

Chapter 80, NFPA 13 Installation of Sprinkler Systems *as amended**

NFPA 13-~~1922~~: Standard for the Installation of Sprinkler Systems as amended*
903.3.1.1, 903.3.2, 903.3.8.2, 903.3.8.5, 904.12, 905.3.4, 907.6.4, 914.3.2, 1019.3, 1103.4.8, 1206.2.11.1, 1206.3.5.1, 3201.1, 3204.2, Table 3206.2, 3206.4.1, 3206.10, 3207.2, 3207.2.

**NFPA 13, Amended Sections as follows:*

Delete section 8.15.5.1 and 8.15.5.2

8.15.5.1 Reserved.*

8.15.5.2 Reserved.

Revise Section ~~8.15.1.2~~159.2.1.16 as follows:

~~8.15.1.2~~159.2.1.16 [Text remains the same]

Revise Section ~~8.15.5.3~~9.3.6.1 as follows:

~~8.15.5.3~~9.3.6.1 [Text remains the same]

Add new Sections ~~8.15.5.6~~19.3.6.1.1 as follows:

~~8.15.5.6~~19.3.6.1.1 [Text remains the same]

Revise Section ~~8.15.7.1~~9.3.19.1* as follows:

~~8.15.7.1~~9.3.19.1* Unless the requirements of ~~8.15.7.2~~ or ~~8.15.7.3~~9.2.3.1, or 9.2.3.2 are met, sprinklers shall be installed under exterior roofs, canopies, porte-cochere, balconies, decks, or similar projections exceeding 4 ft. (1.2 m) in width.

Revise Section ~~8.15.7.2~~9.2.3.1* as follows:

~~8.15.7.2~~9.2.3.1* [Text remains the same]

Delete Section ~~A.8.15.7.2~~A9.2.3.1 of Annex

Revise Section ~~8.15.7.39.2.3.2~~
~~8.15.7.39.2.3.2~~ [Text remains the same]

Delete language to section ~~8.15.7.49.2.3.3~~ and reserve section number.
~~8.15.7.49.2.3.3~~ Reserved.

Revise Annex Section ~~A.8.15.7.5A.9.3.19.2~~ as follows:
~~A.8.15.7.5A.9.3.19.2~~ [Text remains the same]

Add Section ~~8.15.7.69.3.19.3~~ as follows:
~~8.15.7.69.3.19.3~~ [Text remains the same]

Add new Sections ~~8.16.1.1.1.4~~~~16.9.3.1.3.4~~ and ~~8.16.1.1.1.5~~~~16.9.3.1.3.5~~ as follows:
~~8.16.1.1.1.4~~~~16.9.3.1.3.4~~ [Text remains the same]
~~8.16.1.1.1.5~~~~16.9.3.1.3.5~~ [Text remains the same]

Add new Sections ~~8.16.1.6~~, ~~8.16.1.6.1~~, ~~8.16.1.6.1.1~~, ~~8.16.1.6.1.2~~, ~~8.16.1.6.1.3~~,
~~8.16.1.6.2~~, ~~16.9.10.5~~, ~~16.9.10.5.1~~, ~~16.9.10.5.1.1~~, ~~16.9.10.5.1.2~~, ~~16.9.10.5.1.3~~,
~~16.9.10.5.1.4~~, ~~16.9.10.5.2~~ as follows:

~~8.16.1.6~~ ~~16.9.10.5~~ Sectional Valves.

~~8.16.1.6.1~~~~16.9.10.5.1~~ [Text remains the same]

~~8.16.1.6.1.1~~~~16.9.10.5.1.1~~ [Text remains the same]

~~8.16.1.6.1.2~~~~16.9.10.5.1.2~~ Sectional control valves shall be indicating valves in
accordance with Section ~~6.6.1.3~~~~16.9.3.2~~.

~~8.16.1.6.1.3~~~~16.9.10.5.1.3~~ [Text remains the same]

~~8.16.1.6.1.4~~~~16.9.10.5.1.4~~ [Text remains the same]

~~8.16.1.6.2~~~~16.9.10.5.2~~ [Text remains the same]

Add new Section ~~9.1.3.9.1.1~~ ~~17.2.2.9.1~~ as follows:

~~9.1.3.9.1.1~~ ~~17.2.2.9.1~~ [Text remains the same]

Revise Section ~~9.3.5.11.4~~~~18.5.11.4~~ as follows:

~~9.3.5.11.4~~~~18.5.11.4~~ [Text remains the same]

Replace Section ~~9.3.5.12.5~~~~18.5.12.5~~ as follows:

~~9.3.5.12.5~~~~18.5.12.5~~ [Text remains the same]

Replace Section ~~9.3.5.12.6~~~~18.5.12.5~~ as follows:

~~9.3.5.12.6~~~~18.5.12.5~~ Fastening methods other than those identified in 9.3.5.12 shall not
apply to other fastening methods, which shall be acceptable for use if certified by a
registered professional engineer to support the loads determined in accordance with the
criteria in 9.3.5.9~~18.5.9~~. Calculations shall be submitted to the authority having
jurisdiction.

Revise Section ~~9.3.5.12.8~~~~18.5.12.7.4~~ as follows:

~~9.3.5.12.8~~~~18.5.12.7.4~~ Concrete anchors other than those shown in Table 9.3.5.12.2(a)
through Table 9.3.5.12.2(f) and when identified in 9.3.5.11.11~~18.5.11.11~~ shall be
acceptable for use where designed in accordance with the requirements of the building
code and certified by a registered professional engineer.

Revise Section ~~9.3.6.1(3)~~18.6.1(3) as follows:
~~9.3.6.1~~18.6.1*(3) [Text remains the same]

Revise Section ~~10.4.3.1.16.4.3.1.1~~ as follows:
~~10.4.3.1.16.4.3.1.1~~* Pipe joints shall not be located under foundation footings. *The pipe under the building or building foundation shall not contain mechanical joints.*
Exceptions:
1. *Where allowed in accordance with Section ~~10.4.3.26.4.3.1~~.*
2. *Alternate designs may be utilized where designed by a registered professional engineer and approved by the enforcing agency.*

Revise Section ~~11.2.3.1.5.2(9)~~19.2.3.1.5.2(9) as follows:
~~11.2.3.1.5.2(9)~~19.2.3.1.5.2(9) [Text remains the same]

Revise Section ~~11.2.3.2.3.119.2.3.2.3.1~~ as follows:
~~11.2.3.2.3.1~~19.2.3.2.3.1 Where listed quick-response sprinklers, excluding extended coverage quick-response sprinklers, are used throughout a system or portion of a system having the same hydraulic design basis, the system area of operation shall be permitted to be reduced without revising the density as indicated in Figure ~~11.2.3.2.3.1~~19.2.3.2.3.1 when all of the following conditions are satisfied:
(1) Wet pipe system
(2) Light hazard occupancy
(3) 20 ft (6.1 m) maximum ceiling height
(4) There are no unprotected ceiling pockets as allowed by ~~8.6.7~~ 10.2.9 and ~~8.8.7~~11.2.7 exceeding 32 ft² (3 m²)
Figure 19.2.3.2.3.1 Design Area Reduction for Quick-Response Sprinklers
[Diagram remains unchanged]

Revise Section ~~11.2.3.2.3.219.2.3.2.3.2~~ as follows:
~~11.2.3.2.3.2~~19.2.3.2.3.2 [Text remains the same]

Revise Section ~~12.4.1.220.9.5.2~~ as follows:
~~12.4.1.2~~20.9.5.2 [Text remains the same]

[Add Section ~~23.2.1.1~~*28.1.3(18)(e) as follows:]
~~23.2.1.1~~*28.1.3(18)(e) [Text remains the same]

Revise Section ~~25.4~~29.1 as follows:
~~25.4~~29.1*Approval of Sprinkler Systems and Private Fire Service Mains. The installing contractor shall do the following:
(1) Notify the authority having jurisdiction and the property owner or property owner's authorized representative of the time and date testing will be performed.
(2) Perform all required testing (see Section ~~25.2~~29.2).
(3) Complete and sign the appropriate contractor's material and test certificate(s) (see Figure ~~25.4~~A.29.1).
(4) Remove all caps and straps prior to placing the sprinkler system in service.
(5) *Upon system acceptance by the authority having jurisdiction a label*

prescribed by Title 19 California Code of Regulations, Chapter 5 shall be affixed to each system riser.

Revise Section ~~25.4~~29.3 as follows:

~~25.4~~29.3 Instructions. [Text remains the same]

Revise Section ~~25.5.1~~29.4.1 as follows:

~~25.5.1~~29.4.1 [Text remains the same]

Revise Section ~~25.5.2~~29.4.3 as follows:

~~25.5.2~~29.4.3 [Text remains the same]

Revise Section ~~25.6.1~~29.6.1 as follows:

~~25.6.1~~29.6.1 [Text remains the same]

Item 80-6

Chapter 80, NFPA 13D Standard for the Installation of Sprinkler Systems in One- and Two-family Dwellings and Manufactured Homes *as amended**

NFPA 13D—~~4622~~: Standard for the Installation of Sprinkler Systems in One- and Two-family Dwellings and Manufactured Homes, as amended*
903.3.1.3, 903.3.5.1.1

*NFPA 13D, Amended Sections as follows:

Add new Sections ~~8.3.10~~8.3.11 and ~~8.3.10.1~~8.3.11.1 as follows:

~~8.3.10~~8.3.11 *Solar photovoltaic panel structures*

8.3.11.1 *Sprinklers shall be permitted to be omitted from the following structures:*

- (1) Solar photovoltaic panel structures with no use underneath. Signs may be provided, as determined by the enforcing agency prohibiting any use underneath including storage.*
- (2) Solar photovoltaic (PV) panels supported by framing that have sufficient uniformly distributed and unobstructed openings throughout the top of the array (horizontal plane) to allow heat and gases to escape, as determined by the enforcing agency.*

Item 80-7

Chapter 80, NFPA 13R Standard for the Installation of Sprinkler Systems in Low-rise Residential Occupancies *as amended**

13R—~~4622~~: Standard for the Installation of Sprinkler Systems in Low-rise Residential Occupancies

Item 80-8

**Chapter 80, NFPA 14 Standard for the Installation of Standpipe and Hose Systems
as amended***

NFPA 14-19

Item 80-9

**Chapter 80, NFPA 24 Installation of Private Fire Service Mains and Their
Appurtenances as amended***

NFPA 24-19 Standard for Installation of Private Fire Service Mains and Their
Appurtenances Installation of Private Fire Service Mains and Their Appurtenances: as
amended*

Item 80-10

**Chapter 80, NFPA 25 Standard for the Inspection, Testing and Maintenance of
Water-based Fire Protection Systems**

NFPA 25-20 13CA: California NFPA 25 Edition (Based on the 2011 Edition)

Item 80-11

**Chapter 80, NFPA 45 Standard on Fire Protection for Laboratories Using
Chemicals (2015 Edition)**

~~45—19: Standard on Fire Protection for Laboratories Using Chemicals (2015 Edition)~~
~~3803.1.5, 3804.1.1.7, 3805.2.1, 3805.2.2~~

Item 80-12

Chapter 80, NFPA 68 Standard on Explosion Protection by Deflagration Venting

~~68—13: Standard on Explosion Protection by Deflagration Venting~~

68—13: Standard on Explosion Protection by Deflagration Venting

Item 80-13

Chapter 80, NFPA 72 National Fire Alarm and Signaling Code, as amended*

NFPA 72-1922: National Fire Alarm and Signaling Code, as amended*
407.4.4.3, 407.4.4.5, 407.4.4.5.1, 901.6, 903.4.1, 904.3.5, 907.1.2, 907.2,
907.2.6, 907.2.9.3, 907.2.10, 907.2.12.2, 907.3, 907.3.3, 907.3.4, 907.5.2.1.2,
907.5.2.2, 907.5.2.2.5, 907.6, 907.6.1, 907.6.2, 907.6.6, 907.7, 907.7.1, 907.7.2,
911.1.6, 917.1, 2702.2.4, 3005.5, 3007.7

*NFPA 72, Amended Sections as follows:

~~10.7.1 Where approved by the authority having jurisdiction, ECS priority signals when~~

~~evaluated by stakeholders through risk analysis in accordance with 24.3.11 shall be permitted to take precedence over all other signals.~~

Revise Section 17.4516 as follows:

17.4516 Fire Extinguisher Electronic Monitoring Device. [Text remains the same]

Delete the amendments to Section 21.3.6 and adopt the model text.

~~21.3.6 Smoke detectors shall not be installed in unsprinklered elevator hoistways unless they are installed to activate the elevator hoistway smoke relief equipment or where required by Chapter 30 of the California Building Code.~~

Revise Section 12.3.7.8 as follows:

12.3.7.8 (4)(5) [Text remains the same]

Revise Section 23.8.5.1.2 as follows:

~~23.8.5.1.2~~ 23.8.5.1.2* Where connected to a supervising station, fire alarm systems employing automatic fire detectors or waterflow detection devices shall include a manual fire alarm box to initiate a signal to the supervising station.

Exception: Fire alarm systems dedicated to elevator recall control, supervisory service and fire sprinkler monitoring as permitted in section 21.317.15 of NFPA 72.

Revise Section 29.5.2.1.1 as follows:

~~29.5.2.1.1~~ 29.8.2.1.1* Smoke and Heat Alarms. Where connected to a supervising station Unless exempted by applicable laws, codes, or standards, smoke or heat alarms used to provide a fire-warning function, and when two or more alarms are installed within a dwelling unit, suite of rooms, or similar area, shall be arranged so that the operation of any smoke or heat alarm causes all alarms within these locations to sound.

Note: Exception to 29.5.2.1.1 29.8.2.1.1 not adopted by the SFM.

Add Section 29.7.2.1 29.10.2.1 as follows:

29.7.2.1 29.10.2.1 [Text remains the same]

Add Section 29.7.6.7 29.10.6.8.1 as follows:

29.7.6.7 29.10.6.8.1 [Text remains the same]

[Delete amendment 23.8.3.4 and adopt model language in 29.11.3.4]

~~Revise Section 23.8.3.4 as follows:~~

~~23.8.3.4 Specific location requirements. The installation of smoke alarms and smoke detectors shall comply with the following requirements:~~

~~(1) Smoke alarms and smoke detectors shall not be located where ambient conditions, including humidity and temperature, are outside the limits specified by the manufacturer's published instructions.~~

~~(2) Smoke alarms and smoke detectors shall not be located within unfinished attics or garages or in other spaces where temperatures can fall below 40°F (4°C) or exceed 100°F (38°C).~~

~~(3) Where the mounting surface could become considerably warmer or cooler than the~~

~~room, such as a poorly insulated ceiling below an unfinished attic or an exterior wall, smoke alarms and smoke detectors shall be mounted on an inside wall.~~

~~(4) Smoke alarms or smoke detectors shall be installed a minimum of 20 feet horizontal distance from a permanently installed cooking appliance.~~

~~Exceptions: Ionization smoke alarms with an alarm silencing switch or photoelectric smoke alarms shall be permitted to be installed 10 feet (3 m) or greater from a permanently installed cooking appliance.~~

~~Photoelectric smoke alarms shall be permitted to be installed greater than 6 feet (1.8 m) from a permanently installed cooking appliance where the kitchen or cooking area and adjacent spaces have no clear interior partitions and the 10 ft distances would prohibit the placement of a smoke alarm or smoke detector required by other sections of the code.~~

~~Smoke alarms listed for use in close proximity to a permanently installed cooking appliance.~~

~~(5) Effective January 1, 2022, smoke alarms and smoke detectors used in household fire alarm systems installed between 6 ft (1.8 m) and 20 ft (6.1 m) along a horizontal flow path from a stationary or fixed cooking appliance shall be listed for resistance to common nuisance sources from cooking.~~

~~(6) Installation near bathrooms. Smoke alarms shall be installed not less than a 3-foot (0.91 m) horizontal distance from the door or opening of a bathroom that contains a bathtub or shower unless this would prevent placement of a smoke alarm required by other sections of the code.~~

~~(7) Smoke alarms and smoke detectors shall not be installed within a 36 in. (910 mm) horizontal path from the supply registers of a forced air heating or cooling system and shall be installed outside of the direct airflow from those registers.~~

~~(8) Smoke alarms and smoke detectors shall not be installed within a 36 in. (910 mm) horizontal path from the tip of the blade of a ceiling-suspended (paddle) fan.~~

~~(9) Where stairs lead to other occupied levels, a smoke alarm or smoke detector shall be located so that smoke rising in the stairway cannot be prevented from reaching the smoke alarm or smoke detector by an intervening door or obstruction.~~

~~(10) For stairways leading up from a basement, smoke alarms or smoke detectors shall be located on the basement ceiling near the entry to the stairs.~~

~~(11) For tray-shaped ceilings (coffered ceilings), smoke alarms and smoke detectors shall be installed on the highest portion of the ceiling or on the sloped portion of the ceiling within 12 in. (300 mm) vertically down from the highest point.~~

~~(12) Smoke alarms and detectors installed in rooms with joists or beams shall comply with the requirements of 17.7.3.2.4 of NFPA 72.~~

~~(13) Heat alarms and detectors installed in rooms with joists or beams shall comply with the requirements of 17.6.3 of NFPA 72.~~

Item 80-14

Chapter 80, NFPA 76 Standard for the Fire Protection of Telecommunications Facilities

~~76—16: Standard for the Fire Protection of Telecommunications Facilities~~

76—16: Standard for the Fire Protection of Telecommunications Facilities

1207.1.2.1, 1207.2.1, 1207.3.1, 1207.3.7.1, 1207.4.1, 1207.5.1, 1207.5.2, 1207.5.3, 1207.5.5, Table 1207.6, 1207.6.2.3, Table 1207.7

Item 80-15

Chapter 80, NFPA 111 Standard on Stored Electrical Energy Emergency and Standby Power Systems

NFPA 111-~~16~~19

Item 80-16

Chapter 80, NFPA 241 Standard for Safeguarding Construction, Alteration and Demolition Operations

NFPA 241-~~13~~19

Item 80-17

Chapter 80, NFPA 260 Methods of Tests and Classification System for Cigarette Ignition Resistance of Components of Upholstered Furniture

NFPA 260-~~13~~19

Item 80-18

Chapter 80, NFPA 289 Standard Method of Fire Test for Individual Fuel Packages

NFPA 289-~~18~~19

Item 80-19

Chapter 80, NFPA 1124-17 Code for the Manufacture, Transportation, Storage and Retail Sales of Fireworks and Pyrotechnic Articles

~~1124—17~~17: Code for the Manufacture, Transportation, and Storage of Fireworks and Pyrotechnic Articles
202, 5604.2, 5605.1, 5605.3, 5605.4, 5605.5, 5609.1

Item 80-20

Chapter 80, NFPA 2001 Standard on Clean Agent Fire Extinguishing Systems

2001—18: Standard on Clean Agent Fire Extinguishing Systems as amended*

Notation:

Authority: Health and Safety Code Sections 1250, 1569.72, 1569.78, 1568.02, 1502,

1597.44, 1597.45, 1597.46, 1597.54, 1597.65, 13108, 13108.5, 13114, 13143, 13143.2, 13143.6, 13146, 13210, 13211, 17921, 18949.2, 25500 through 25545, Government Code Section 51189, Public Education Code 17074.50

Reference(s): Health and Safety Code Sections 13143, 13211, 18949.2, 25500 through 25545, Government Code Sections 51176, 51177, 51178 and 51179, Public Resources Code Sections 4201 through 4204

APPENDICES

APPENDIX CHAPTER 4 SPECIAL DETAILED REQUIREMENTS BASED ON USE AND OCCUPANCY

Item A4-1

Appendix 4, Special Detailed Requirements Based on Use and Occupancy

[The SFM proposes to adopt Appendix 4.]

Item A4-2

Appendix 4, Special Detailed Requirements Based on Use and Occupancy

[The SFM proposes to amend Section 436.1.]

436.1 Group I-4 special provisions. *Rooms classified as Group I-4 shall not be located above or below the first story.*

Exceptions:

1. *Basements or stories having floor levels located within 4 feet (1219 mm), measured vertically, from adjacent ground level at the level of exit discharge, provided the basement or story has exterior exit doors at that level.*

~~2. In buildings equipped with an automatic sprinkler system throughout, rooms used for kindergarten, first and second-grade children or for adult day care purposes may be located on the second story, provided there are at least two exterior exit doors, or other egress systems complying with Section 1020 with two exits, for the exclusive use of such occupants. Egress systems for the exclusive use of such occupants shall be maintained until exit discharge at grade is attained.~~

~~32.~~ *Group I-4 child care center or adult day care facilities may be located above the first story in buildings of Type I construction and in Type I-A, Type I-B, Type II-A, and III-A, IV-A, IV-B and IV-C construction, subject to the limitation of Section 503 when:*

~~32.1.~~ *Group I-4 child care facilities centers with children under the age of seven or containing more than 12 children per story shall not be located above the fourth floor; and*

32.2. The entire story in which the Group I-4 child care center or adult day care facility is located is equipped with an approved manual fire alarm and automatic smoke-detection system. (See the California Fire Code.) Actuation of an initiating device shall sound an audible alarm throughout the entire story. When a building fire alarm system is required by other provisions of this code or the Fire Code, the alarm system shall be connected to the building alarm system. An approved alarm signal shall sound at an approved location in the Group I-4 ~~child care~~ facility to indicate a fire alarm or sprinkler flow condition in other portions of the building; and

32.3. Group I-4 child care center or adult day-care facilities, if more than 1,000 square feet (92.9 m²) in area, is divided into at least two compartments of approximately the same size by a smoke barrier with door openings protected by smoke- and draft-control assemblies having a fire-protection rating of not less than 20 minutes. Smoke barriers shall have a fire-resistive rating of not less than one hour. In addition to the requirements of Section 508.3.3, occupancy separations between Group I-4 child care center or adult day care and other occupancies shall be constructed as smoke barriers. Door openings in the smoke barrier shall be tightfitting, with gaskets installed as required by Section 710, and shall be automatic closing by actuation of the automatic sprinklers, fire alarm or smoke-detection system.

32.4. Each compartment formed by the smoke barrier has not less than two exits or exit access doors, one of which is permitted to pass through the adjoining compartment; and

32.5. Where two or more exits, or exit access are required at least one shall not share a common path of travel. The egress system shall comply with the requirements of Section 709 for smoke barriers.

32.6. The building is equipped with an automatic sprinkler system throughout.

Item A4-3

Appendix 4, Special Detailed Requirements Based on Use and Occupancy

[The SFM proposes to amend Section 436.1.1.]

436.1.1 Egress. Rooms used for group I-4 child care or adult day care on the first floor shall have one exit door directly to the exterior.

Exception: One-hour rated corridors with a minimum width of 60 inches.

Item A4-4

Appendix 4, Special Detailed Requirements Based on Use and Occupancy

[The SFM proposes to amend Section 452 Title.]

**SECTION 452
SCHOOL FACILITIES FOR KINDERGARTEN
THROUGH 12TH GRADE AND GROUP E DAY CHILD CARE**

Item A4-5

Appendix 4, Special Detailed Requirements Based on Use and Occupancy

[The SFM proposes to amend Section 452.1.4.]

452.1.4 Special provisions. *Rooms used by kindergarten, first-, or second-grade pupils, and Group E day child care, shall not be located above or below the first story.*

Exceptions:

1. Kindergarten, first-, or second-grade pupils, or day Group E child care may be located in basements or stories having floor levels located within 4 feet (1219 mm), measured vertically, from the adjacent ground level at the level of exit discharge, provided the basement or story has exterior exit doors at that level.
2. In buildings equipped with an automatic sprinkler system throughout, rooms used for kindergarten, first- and second-grade children or for Group E day- child care purposes may be located on the second story, provided there are at least two exterior exit doors, or other egress systems complying with Section 1020 with two exits, for the exclusive use of such occupants. Egress systems for the exclusive use of such occupants shall be maintained until exit discharge at grade is attained.
3. Group E day-care facilities may be located above the first story in buildings of Type I-A, Type I-B, Type II-A, and III-A, IV-A, IV-B and IV-C construction, subject to the limitation of Section 503 when:
 - 3.1. Facilities with children under the age of seven or containing more than 12 children per story shall not be located above the fourth floor; and
 - 3.2. The entire story in which the day-care facility is located is equipped with an approved manual fire alarm and automatic smoke-detection system. Actuation of an initiating device shall sound an audible alarm throughout the entire story. When a building fire alarm system is required by other provisions of this code, the alarm system shall be interconnected and sound the day-care fire alarm system; and

3.3. *The day-care facility, if more than 1,000 square feet (92.9 m²) in area, is divided into at least two compartments of approximately the same size by a smoke barrier in accordance with Section 709. In addition to the requirements of Section 508, occupancy separations between daycare and other occupancies shall be constructed as smoke barriers. Door openings in the smoke barrier shall be tight fitting, with gaskets installed as required by Section 716.5.3.1 and shall be automatic closing by actuation of the fire sprinklers, fire alarm or smoke detection system; and*

3.4. *Each compartment formed by the smoke barrier has not less than two exits or exit-access doors, one of which is permitted to pass through the adjoining compartment, and*

3.5. *At least one exit or exit-access door from the day-care facility shall be into a separate means of egress with not less than two paths of exit travel, which are separated in such a manner to provide an atmospheric separation. The egress system shall comply with the requirements of Section 709 for smoke barriers.*

3.6. *The building is equipped with an automatic sprinkler system throughout.*

APPENDIX A BOARD OF APPEALS

Item A-1

Appendix A, Board of Appeals

[The SFM proposes to NOT adopt Appendix A.]

APPENDIX B FIRE-FLOW REQUIREMENTS FOR BUILDINGS

Item B-1

Appendix B, Fire-Flow Requirements For Buildings

[The SFM proposes to adopt Appendix B.]

APPENDIX BB FIRE-FLOW REQUIREMENTS FOR BUILDINGS

Item BB-1

Appendix BB, Fire-Flow Requirements For Buildings

[The SFM proposes to adopt Appendix BB.]

APPENDIX C

FIRE HYDRANT LOCATIONS AND DISTRIBUTION

Item C-1

Appendix C, Fire Hydrant Locations And Distribution

[The SFM proposes to adopt Appendix C.]

APPENDIX CC FIRE HYDRANT LOCATIONS AND DISTRIBUTION

Item CC-1

Appendix CC, Fire Hydrant Locations And Distribution

[The SFM proposes to adopt Appendix CC.]

APPENDIX D FIRE APPARATUS ACCESS ROADS

Item DD-1

Appendix D, Fire Apparatus Access Roads

[The SFM proposes to NOT adopt Appendix D.]

APPENDIX E HAZARD CATEGORIES

Item E-1

Appendix E, Hazard Categories

[The SFM proposes to NOT adopt Appendix E.]

APPENDIX F HAZARD RANKING

Item F-1

Appendix F, Hazard Ranking

[The SFM proposes to NOT adopt Appendix F.]

APPENDIX G CRYOGENIC FLUIDS—WEIGHT AND VOLUME EQUIVALENTS

Item G-1

Appendix G, Cryogenic Fluids—Weight And Volume Equivalents

[The SFM proposes to NOT adopt Appendix G.]

**APPENDIX H
HAZARDOUS MATERIALS MANAGEMENT PLAN (HMMP)
AND HAZARDOUS MATERIALS INVENTORY STATEMENT (HMIS)
INSTRUCTIONS (See Sections 5001.5.1 and 5001.5.2)**

Item H-1

**Appendix H, Hazardous Materials Management Plan (HMMP) And Hazardous
Materials Inventory Statement (HMIS) Instructions**

[The SFM proposes to adopt Appendix H.]

**APPENDIX I
FIRE PROTECTION SYSTEMS—NONCOMPLIANT CONDITIONS**

Item I-1

Appendix I, Fire Protection Systems—Noncompliant Conditions

[The SFM proposes to NOT adopt Appendix I.]

**APPENDIX J
BUILDING INFORMATION SIGN**

Item J-1

Appendix J, Building Information Sign

[The SFM proposes to NOT adopt Appendix J.]

**APPENDIX K
CONSTRUCTION REQUIREMENTS FOR
EXISTING AMBULATORY CARE FACILITIES**

Item K-1

Appendix K, Construction Requirements For Existing Ambulatory Care Facilities

[The SFM proposes to NOT adopt Appendix K.]

**APPENDIX L
REQUIREMENTS FOR FIRE FIGHTER
AIR REPLENISHMENT SYSTEMS**

Item L-1

Appendix L, Requirements For Fire Fighter Air Replenishment Systems

[The SFM proposes to NOT adopt Appendix L.]

**APPENDIX M
HIGH-RISE BUILDINGS—RETROACTIVE
AUTOMATIC SPRINKLER REQUIREMENT**

Item M-1

Appendix M, High-Rise Buildings—Retroactive Automatic Sprinkler Requirement

[The SFM proposes to NOT adopt Appendix M.]

**APPENDIX N
INDOOR TRADE SHOWS AND EXHIBITIONS**

Item N-1

Appendix N, Indoor Trade Shows And Exhibitions

[The SFM proposes to NOT adopt Appendix N.]

**APPENDIX O
TEMPORARY HAUNTED HOUSES,
GHOST WALKS AND SIMILAR AMUSEMENT USES**

Item O-1

Appendix O, Temporary Haunted Houses, Ghost Walks And Similar Amusement Uses

[The SFM proposes to NOT adopt Appendix O.]

**APPENDIX P
COMMUNITY WILDLAND-URBAN INTERFACE (WUI)
FIRE HAZARD EVALUATION FRAMEWORK**

Item P-1

Appendix P, Community Wildland-Urban Interface (WUI) Fire Hazard Evaluation Framework

[The SFM proposes to NOT adopt Appendix P.]

APPENDIX P
COMMUNITY WILDLAND-URBAN INTERFACE (WUI)
FIRE HAZARD EVALUATION FRAMEWORK

WUI fire spread has significant impact on communities well beyond the loss of structures, including community evacuation and incident response. Pre-fire planning and hazard mitigation impact how the fire develops, how the life safety of residents and first responders is impacted during evacuations, and the extent of structural and infrastructure losses. There is a need to document pre-fire hazard in a way that assesses the fire impact beyond potential structural losses.

This appendix contains a preliminary Community Wildland Urban Interface (WUI) Fire Hazard Evaluation Framework as a suggested methodology to begin to support communities at risk in the identification of their unique hazards and to provide common metrics for comparisons between communities. This preliminary framework includes information on community size, population, and fuels; on notification and evacuation; and on the community infrastructure and firefighting response potential. Aspects of this framework may already be included in various community-level documents, such as Community Wildfire Protection Plans or evacuation plans. Development of a standard framework will 1) consolidate relevant WUI fire hazard and planning information in one place, and 2) allow for cross-community comparisons.

The evaluation required to implement this framework will support pre-fire hazard assessment and during-fire response operations. An increased understanding of fire-evacuation, fire-structural response, and fire-defensive actions relationships is needed to assess the overall community WUI fire hazard. The quantification of these relationships will enable communities to optimize the community-level response to WUI fire hazards in a more integrated approach and result in increased life safety and reduced losses.

| <u>Community WUI Fire Hazard Evaluation Framework</u> | | |
|--|---|----------------------------------|
| <u>Community</u> | <u>Data Type</u> | <u>Data Layer in MDS</u> |
| <u>Community shapefile, geodatabase, or Geo-Package including topography and geographic attributes, and prevailing weather patterns (e.g., wind)</u> | <u>GIS layer</u> | <u>x</u> |
| <u>Fuels</u> | | |
| <u>Structure Density (structure separation distances - SSD)</u> | <u>SSD histogram</u> | |
| <u>Age of structures</u> | <u>Histogram</u> | |
| <u>Vegetative Fuel Loading:</u> - <u>Fuel type</u> - <u>Fuel loading</u> | <u>fuel type</u> <u>tons/acre</u> | |
| <u>Natural and artificial fuel breaks (including fuel treatments within and around community and year built)</u> | <u>List, GIS layer</u> | <u>x</u> |
| <u>Community hazards (e.g. hazmat and high fuel load facilities)</u> | <u>Specify, GIS layer</u> | <u>x</u> |
| <u>Fire History</u> | <u>Frequency of, and most recent, fires in/around community</u> | <u>x</u> |
| <u>Population</u> | | |
| <u>Population</u> - <u>Density</u> - <u>Permanent/transient ratio</u> | <u>Number, age distribution</u> <u>Number/acre</u> <u>p/t ratio</u> | |
| <u>Notification</u> | | |
| <u>Reverse 911</u> - <u>Opt-in or Opt-out</u> - <u>Percent of population enrolled in Reverse 911</u> | <u>Opt-in/Opt-out</u> <u>%</u> | |
| <u>Sirens or other notification with power backup</u> - <u>Percent of population within siren coverage range</u> | <u>List</u> <u>% population</u> | |
| <u>Notification dissemination w/out phone or internet</u> | <u>y/n</u> | |
| <u>Evacuation</u> | | |
| <u>Egress Route Capacity (Minimum Throughput Time)</u> | <u>Time (hours)</u> | |
| <u>Vulnerability of egress arteries:</u> - <u>Fuel setbacks</u> - <u>Hazmat/high fuel load facilities affecting evacuation</u> - <u>Other</u> | <u>fuel setback data, GIS layer</u> <u>specify, GIS layer</u> | <u>x</u> <u>x</u> <u>x</u> |
| <u>Hospitals and senior care facilities</u> | <u>specify, number of persons</u> | <u>x</u> |
| <u>Community evacuation plan</u> | <u>y/n, specify, GIS layer</u> | <u>x</u> |
| <u>Safety zones and large crowd assembly areas, capacity</u> | <u>y/n, number, GIS layer</u> | <u>x</u> |
| <u>Evacuation drills</u> | <u>y/n</u> | |
| <u>Community in evacuation route of other communities, through-flow number</u> | <u>y/n, identify, number</u> | |
| <u>Infrastructure / COOP / COG</u> | | |
| <u>Location and needs of key facilities</u> | <u>List</u> | <u>x</u> |
| <u>Public water, dependence on power, generator backup, community owned water</u> | <u>y/n, y/n, y/n, y/n</u> | |
| <u>Power lines around primary arteries (above ground or below)</u> | <u>above or below</u> | <u>x</u> |
| <u>Critical infrastructure that requires fuel to keep operating</u> | <u>specify, GIS layer</u> | <u>x</u> |
| <u>Fire Fighting Response</u> | | |
| <u>Volunteer vs Career</u> <u>(availability of first responder resources at station)</u> | <u>volunteer/career/combination</u> | |
| <u>Density of firefighting (ff) responder to number of structures (ff/structure ratio)</u> | <u>ff/structures</u> | |

| | | |
|---|--------------------------------|--|
| <u>Mutual aid response (engines-hours histogram) and agreements with mutual aid</u> | <u>engines-hours histogram</u> | |
|---|--------------------------------|--|

Definitions

The Community WUI Hazard Evaluation Framework presented here is intended for communities as small as a few hundred to tens of thousands of residents. The methodology is not intended for the documentation of single residences or large cities. It is intended to provide a community with an overview of the overall WUI fire-related hazards and to enable the authority having jurisdiction (AHJ) to compare the relative hazards and preparedness levels of different communities. The information collected can be used by first responders and community and county officials to prioritize hazard mitigation within and around the community and to develop “tabletop” responses to different WUI fire scenarios. In the event of an actual WUI fire, the information collected could be used by first responders and local officials to safely evacuate civilians, to reduce the risk of first responder injuries, and to enhance fire containment. The following are definitions and uses of the different components of the Community WUI Fire Hazard Evaluation Framework. This framework may be expanded to include additional characteristics that are not specifically listed in this preliminary version.

Community

In the sense of WUI fire hazard, the community should be viewed in the context of evacuation arteries rather than jurisdictional boundaries. As such, the community may have parts that are incorporated or unincorporated. Community size is reported in acres, and the community boundary selected for this hazard evaluation can be provided for use in a geographic information system (GIS) layer in a number of formats, including but not limited to shapefile, geodatabase, or Geo-Package. A topographic overview of the area (community) is used to describe the general conditions using one or more of the following key words: flat terrain, rolling hills, moderate slopes, valleys and steep slopes, and/or plateau.

Information about prevailing weather patterns, such as localized winds or significant wind events (strength and direction), should also be included in the community profile.

Fuels

The fuels section is intended to provide an overview of the structural, vegetative, and other fuels present in the community. This is not a parcel-level assessment; however, if defensible space assessment data is available, it can be aggregated and utilized within this framework to provide higher resolution assessment of community fire hazard. Structure density is a simple metric to capture structure-to-structure spacing and provide insight on the potential structure-to-structure fire spread. For uniform communities, a representative structure separation distance (SSD) may be sufficient, whereas nonuniform communities will be better described using a histogram of SSD. The age of structures may also be a factor in structure vulnerability due to changes in building codes associated with structure hardening. Similarly, a community that was built over a short period of time can be represented by a single value representing the decade of construction, while a community that grew and expanded over long periods

will be better represented by a histogram of structure ages. A database such as LANDFIRE¹ can provide the vegetative fuel type and fuel loading throughout the community. This data will be limited by the age of the last LANDFIRE overflight and the 30m pixel spatial resolution.

Natural and artificial fuel breaks, including fuel treatments within and around the community, should be represented in a geospatial format and should include the year the vegetative fuel treatment was conducted. Fuel treatments should also include any logging activities in the area surrounding the community. Fire history in and around the community will describe the last time the community experienced direct impacts from fire. Shapefiles of the fuel treatments and fire history will allow for spatial documentation of this data. Fuel treatments and fire history should be documented at least 16 km (10 mi) out from the edge of the community. Local conditions (e.g., fuel, topography, weather, evacuation routes) may require documentation well beyond 16 km (10 mi). The last large fire in the area of the community perimeter, together with the vegetative fuel loading, will provide information on the potential energy content of the vegetative fuels in the event of a short- or long-term drought.

The documentation of other community hazards such as hazmat or high fuel load facilities (e.g., fixed propane tanks, hazardous material storage and use facilities, ammunition facilities, lumber yards, pallet storage, tire storage) is important as they can affect civilians and first responder safety during evacuations, fire containment, and mop-up activities. The information should be provided in the form of a GIS layer and may then be used by first responders to develop “tabletop” responses for emergency preparedness, and to direct response actions during a WUI fire event.

Population

The population of the selected community will impact, among other factors, the minimum time required for evacuation. Population and population density, expressed as the number of residents per acre, are both important metrics that provide information that can be used for evacuation assessment. The permanent to transient population density ratio is intended to capture the fraction of the community that may be visiting for tourism and may not be aware of community evacuation and other fire related activities.

Notification

The notification section of the Community WUI Hazard Evaluation is designed to capture the presence and type of mass-notification tools available to emergency managers. It should be noted that reliance on individual notification methods may result in limited notifications. If a Reverse 911 system is in place, the percentage of the community that will potentially receive the notifications from this system will estimate the number of residents that may require different notification(s). Sirens or other fixed notification systems with power backup should also be listed in this section along with the fraction of the population covered by these systems. Additional notification systems that don't require phone or internet are also captured in this section, since WUI events frequently result in power outages or other service interruptions.

¹ www.landfire.gov

Evacuation

This section of the Community WUI Hazard Evaluation is not intended to replace a full community evacuation study or act as a community evacuation plan. The primary purpose of this section is to compute, given a number of assumptions, a Minimum Throughput Time (MTT), to provide an initial idealized order of magnitude time to be considered in the early stages of evacuation pre-planning. This information can be of value to first responders and community emergency planning personnel, as it may potentially highlight critical evacuation bottlenecks inside or outside the community.

The MTT concept is a traffic engineering calculation of roadway capacity to provide an initial lower bound for planning community evacuation. The MTT is intended for isolated and partly isolated interface and intermix communities rather than a city setting with large populations and complex evacuation routes. A community should consider a detailed evacuation study to further enhance the community evacuation plan. There is a significant body of work associated with developing dynamic evacuation models.²

The MTT considers two significant factors: bottlenecks within and beyond town, and the total number of vehicles that must be accommodated. Bottlenecks slowing traffic throughput may be located within or outside of jurisdictional boundaries. Bottlenecks occurring well beyond the evacuating community may cause ripple effects significantly impacting community evacuation. In identifying the population for computing the MTT, consideration should be given to neighboring settlements/communities that may share the same evacuation route(s). The MTT should consider the minimum number of traffic lanes (i.e., 8 lanes merging into 2 lanes should be treated as 2 lanes) available for evacuation, the community population, and the average speed limit of the egress routes. Contraflow, the implementation of reverse direction traffic flow, may be considered here, along with provisions for first responder access to the community. The computed Minimum Throughput Time (MTT) does not account for any of the numerous potential hindrances to evacuation traffic, such as road accidents, reduced speed due to smoke obscuration, merging of traffic in town to feed the primary arteries, large vehicles that occupy more space than cars and have reduced maneuverability, or fire activity impacts, such as burn overs, causing evacuation lane(s) closures and potential slowdowns associated with traffic redirections.

The evacuation section is also used to identify vulnerabilities of egress arteries including vegetative fuel setbacks as well as any hazardous material facilities which might affect evacuation. Fuel setback information, collected in 0.25 km (0.15 mi) increments along egress routes, presented in the form of a histogram and a GIS layer, could help identify vulnerable spots that may potentially impact evacuation and identify candidate locations for fuel treatments.

The presence of a Community Evacuation Plan, the presence and capacity of safety zones and other large crowd assembly areas, and whether or not evacuation drills are

² An example of a framework which includes coupled fire and evacuation considerations, as well as background on the individual model components, is provided in Ronchi et al. (2019) "An open multi-physics framework for modelling WUI fire evacuations," *Safety Science* 118:868-880.

performed will contribute to the community evacuation preparedness overview. The number of hospitals and senior care facilities and their total capacity will provide further information to assess overall community evacuation needs.

Infrastructure / COOP / COG

The locations and needs of key facilities for maintaining continuity of operations (COOP) and continuity of government (COG), such as police, fire, EMS, hospitals, government buildings, cell towers, water sources, water provider infrastructure, electrical utility key infrastructure, and natural gas key infrastructure should be listed and incorporated in this part of the evaluation framework.

Infrastructure characteristics, particularly related to water supply and electric utilities, can impact response and potential pre-fire hazard reduction. The public water system dependence on power supply, including the availability of backup power sources (i.e., generator backup) will provide insight into the resilience of the water system. The location of power lines (i.e., above or below ground) can impact evacuation, as downed power lines can impact evacuation and mobility throughout the community.

Fire Fighting Response

The type of fire department, whether volunteer, career, or combined, may impact the likely availability and response time of first responder resources. The density of firefighting (ff) responders, as a ratio of the number of personnel on shift to the number of structures (number of ffs/number of structures) will provide information on the maximum possible coverage by the local resources.

In this section, mutual aid resources should be counted only if mutual aid agreements are in place and can ensure rapid deployment. Mutual aid response is captured through a histogram in 1-, 2-, 3-, and 4-hour travel times. This may also be approximated using a geographic radius of distance from the community. The purpose of this information is to provide insight into the minimum response times by mutual aid.

Notation:

Authority: Health and Safety Code Sections 1250, 1569.72, 1569.78, 1568.02, 1502, 1597.44, 1597.45, 1597.46, 1597.54, 1597.65, 13108, 13108.5, 13114, 13143, 13143.2, 13143.6, 13146, 13210, 13211, 17921, 18949.2, 25500 through 25545, Government Code Section 51189, Public Education Code 17074.50

Reference(s): Health and Safety Code Sections 13143, 13211, 18949.2, 25500 through 25545, Government Code Sections 51176, 51177, 51178 and 51179, Public Resources Code Sections 4201 through 4204